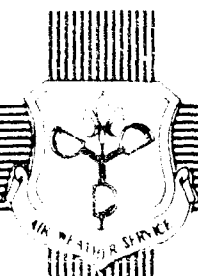


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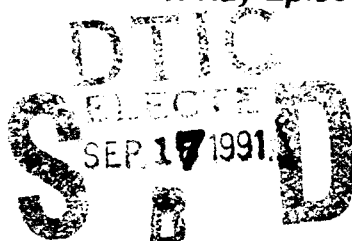
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2



CONDITIONAL CLIMATOLOGY OF Ap

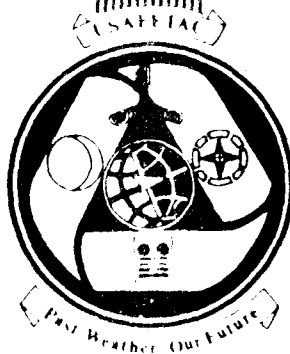
The Relationship Between Various Solar Events
(Surges, Prominences, Filaments, Radio Bursts,
X-Ray Episodes) and Geomagnetic Storms



by

Maj Donald L. Wilson

AUGUST 1991



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5 August 1991

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PREFACE

This report is a continuation of USAFETAC/TN-90/001, *Conditional Climatology of Ap--The Relationship Between Solar Flares and Geomagnetic Storms*. Using solar flare optical observations, USAFETAC/TN-90/001 examined the association between solar flares and Earth's geomagnetic disturbances (Ap). In similar fashion, this report documents the relationship between Ap and various other solar events, such as surges, prominences, filaments, radio bursts and X-ray events.

Surge, prominence, and filament solar observations are from USAFETAC's SESS Climatic Database; radio, X-ray and Ap data are from the National Geophysical Data Center (NGDC). All data has an 11-year period of record (1975 to 1986, Solar Cycle 21).

Solar reports were merged with 3-hour Ap values for 7 days after each event. The resultant datasets were analyzed with respect to event type, the event's position on the sun, the event's size, and the phase of the solar cycle when the event occurred. Contingency tables of means and percent frequency distributions summarize the results.

As in USAFETAC/TN-90/001, "Ap" and "ap" are used interchangeably throughout the report to describe geomagnetic disturbances in general terms, but specifically, "big" Ap refers to the daily index, and "little" ap to the 3-hour index.

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Chapter 1

THE RELATIONSHIP BETWEEN DISK & LIMB EVENTS AND GEOMAGNETIC INDEX

1-1 INTRODUCTION. Some of the largest geomagnetic storms are caused by energetic flares on the Sun. USAFETAC TN-90/001 documents a study of USAFETAC's optical solar flare database and its relationship to Göttingen's planetary geomagnetic index (Ap). Besides solar flares, there are a variety of other types of transient solar events, commonly group together as disk and limb activity summaries (DALAS), that also contribute to geomagnetic storms. This chapter attempts to describe this relationship.

DALAS reports for this study are from USAFETAC's Space Environmental Support System (SESS) Climatic Database, while Ap data came from the National Geophysical Data Center (NGDC). Although a majority of the solar reports are from Air Weather Service (AWS) solar sites, other international observatories are also include in the database. These data span an entire 11-year solar cycle, June 1976 to September 1986.

Solar reports were merged with 3-hour ap values for 7 days after each event. Next, daily Ap (mean of 8 3-hour ap values) and maximum 3-hour ap values for each 24-hour period were calculated. The resultant dataset was analyzed with respect to event type, position on the sun, size and phase of solar cycle the event occurred. Contingency tables of means and percent frequency distributions of Ap summarize the results.

1-2 CONDITIONAL CLIMATOLOGY TABLES.

Thirteen types of DALAS reports were organized into three general categories: (1) surges, (2) prominence/filaments, and (3) special prominences. The abbreviations for each type, and the groupings, are given in the following listing. Definitions for each DALAS report are not given here, but two sources of additional information are: *Space Environmental Services Center's Glossary of Solar-Terrestrial Terms*, and AFGWC TN-82/002, *Source Book of the Solar-Geophysical Environment*.

Surge Category

ASR = Active Surge Region
BSL = Bright Surge on Limb
DSD = Dark Surge on Disk
BSD = Bright Surge on Disk

Prominence & Filament Category

APR = Active Prominence
EPL = Eruptive Prominence on the Limb
ADF = Active Dark Filament
DSF = Disappearing Solar Filament

Special Prominence Category

LPS = Loop Prominence System
SPY = Spray
CRN = Coronal Rain
MDP = Mound Prominence
CAP = Cap Prominence

There are three types of tables for each category: (1) means (both daily Ap and maximum 3-hour ap), (2) percent frequency distribution for daily Ap, and (3) percent frequency distribution for maximum 3-hour ap. An explanation of how to read each type of table follows.

Tables 1-1 through 1-3 summarize mean Ap conditions for 7 days following a particular DALAS event. Reading from left to right, event abbreviations are first, followed by mean daily Ap and maximum 3-hour ap for Day 1 through 7, and a total number of reports in the far right column. For example, the first row of Table 1-1 shows 4235 active surge region (ASR) reports in the database. On Day 1 and 2 following an ASR event, the mean daily Ap was 16; on Day 3 through 7, the mean was 17. For the 3-hour ap conditions, the mean value is 33 for all 7 days following an ASR event except Day 2. Since ASR events show little association with sharp rises and falls of Ap values, these solar phenomenon do not seem to be "geo-effective". Alternatively, Table 1-3 indicates SPY events are related to normal Ap values on Day 1 (14), but higher Ap conditions exist on Day 3 (19).

Table 1-1 Event vs Mean Ap For Surges

Event	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
ASR	16	16	17	17	17	17	17	33	32	33	33	33	33	33	4235
BSL	15	18	19	18	16	17	17	31	38	38	37	32	33	37	140
DSD	17	17	17	17	17	17	17	33	34	34	34	34	34	34	2848
BSD	20	19	17	17	17	17	15	41	38	36	34	35	34	30	329
=====															
															7552

Table 1-2 Event vs Mean Ap For Prominence/Filaments

Event	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
APR	16	16	16	16	17	17	17	32	31	31	31	33	33	33	2413
EPL	17	17	17	16	16	17	15	36	33	34	30	32	35	28	160
ADF	16	17	16	16	16	16	16	33	33	33	33	32	32	32	8369
DSF	15	14	14	16	15	15	15	29	28	28	32	31	29	29	715
=====															
															11657

Table 1-3 Event vs Mean Ap For Special Prominences

Event	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
LPS	20	22	20	19	20	18	10	40	44	39	39	39	37	30	274
SPY	14	18	19	17	16	18	20	26	35	38	31	32	40	44	46
CRN	18	21	17	17	17	23	17	36	37	31	32	33	44	36	24
MDP	19	17	16	16	16	19	14	37	38	33	41	33	40	31	14
CAP	8	6	14	17	31	30	17	16	10	30	40	84	76	34	7
=====															
															325

Total Count: 19534

Tables 1-4 through 1-6 summarize *daily* Ap percent frequency distributions for 7 days following a particular DALAS event. Reading from left to right, abbreviations are first, followed by a percentage associated with each Ap interval for Days 1 to 7, mean Ap, and the number of events are in the far right column. The median interval is underlined (50% above and below interval). For

example, the first group of rows for Table 1-4 once again shows 4,235 ASR reports in the database. On Day 1, 42.5% of the reports were associated with an Ap between 0 and 10; 32.0% between 11 and 20; 14.1% between 21 and 30, and so on across the row. Row for Days 2 through 7 show little change in the Ap distribution related to ASR events.

Table 1-4 Event vs Daily Ap Distribution for Surges

----- Daily Ap Distribution -----														
Event	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
ASR	Day 1	42.5	<u>32.0</u>	14.1	5.3	2.8	1.2	0.6	0.5	0.2	0.1	0.2	16	4235
	Day 2	44.1	<u>32.2</u>	12.5	4.6	2.9	1.2	0.6	0.6	0.1	0.2	0.5	16	
	Day 3	44.2	<u>32.5</u>	12.0	4.8	2.8	1.2	0.5	0.5	0.1	0.2	0.7	17	
	Day 4	42.5	<u>32.9</u>	12.9	5.5	2.3	1.2	0.8	0.5	0.3	0.2	0.5	17	
	Day 5	42.8	<u>32.9</u>	12.5	5.7	2.1	1.5	0.7	0.4	0.2	0.1	0.5	17	
	Day 6	43.4	<u>32.5</u>	12.2	5.6	2.6	1.2	0.6	0.4	0.2	0.1	0.6	17	
	Day 7	45.3	<u>30.2</u>	12.1	5.4	2.9	1.7	0.6	0.5	0.2	0.1	0.6	17	
BSL	Day 1	49.2	<u>28.5</u>	9.2	7.1	2.1	2.8	0.7	0.0	0.0	0.0	0.0	15	140
	Day 2	40.0	<u>29.2</u>	14.2	4.2	7.1	1.4	2.8	0.7	0.0	0.0	0.0	18	
	Day 3	36.4	<u>32.1</u>	16.4	5.0	4.2	2.1	0.7	0.7	0.7	0.0	1.4	19	
	Day 4	27.8	<u>43.5</u>	15.7	8.5	2.1	0.0	1.4	0.0	0.0	0.0	0.7	18	
	Day 5	38.5	<u>31.4</u>	17.8	9.2	0.7	1.4	0.0	0.0	0.0	0.0	0.7	16	
	Day 6	47.1	<u>27.1</u>	16.4	5.0	0.0	0.0	1.4	0.7	0.0	0.7	1.4	17	
	Day 7	41.4	<u>32.1</u>	10.7	6.4	5.7	2.8	0.0	0.0	0.7	0.0	0.0	17	
DSD	Day 1	46.3	<u>30.1</u>	11.0	5.1	3.2	1.5	0.4	0.7	0.1	0.3	0.6	17	2848
	Day 2	45.2	<u>29.9</u>	11.5	6.1	3.0	1.7	0.7	0.6	0.2	0.1	0.5	17	
	Day 3	43.7	<u>30.8</u>	12.2	6.3	2.9	1.9	0.5	0.4	0.1	0.0	0.6	17	
	Day 4	44.8	<u>28.5</u>	13.4	5.7	3.4	1.3	0.7	0.7	0.3	0.1	0.6	17	
	Day 5	42.6	<u>31.0</u>	13.5	5.6	3.2	1.6	0.5	0.7	0.1	0.1	0.6	17	
	Day 6	43.8	<u>30.0</u>	13.2	5.7	3.1	1.7	0.6	0.5	0.2	0.1	0.5	17	
	Day 7	43.4	<u>31.4</u>	12.5	5.8	3.2	1.4	0.5	0.6	0.0	0.1	0.5	17	
BSD	Day 1	39.2	<u>30.3</u>	12.7	8.2	2.4	3.3	1.2	0.6	0.0	0.9	0.9	20	329
	Day 2	41.3	<u>27.9</u>	15.5	7.2	2.1	2.1	0.3	0.9	0.3	0.0	2.1	19	
	Day 3	38.6	<u>35.8</u>	12.1	5.7	4.2	1.8	0.0	0.9	0.0	0.0	0.6	17	
	Day 4	39.8	<u>33.4</u>	14.8	5.1	3.6	0.9	1.2	0.6	0.0	0.0	0.3	17	
	Day 5	39.5	<u>37.3</u>	12.4	4.5	1.8	1.2	0.6	0.6	0.3	0.3	1.2	17	
	Day 6	45.5	<u>27.9</u>	15.5	4.2	1.5	3.3	0.3	0.0	0.0	0.0	1.5	17	
	Day 7	45.2	<u>33.1</u>	13.6	4.5	0.9	0.6	0.6	0.3	0.0	0.3	0.6	15	

Table 1-5 Event vs Daily Ap Distribution for Prominence/Filaments

Daily Ap Distribution														
Event	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
APR	Day 1	44.8	31.0	12.1	5.8	2.9	1.2	0.7	0.4	0.1	0.1	0.3	16	2413
	Day 2	45.6	31.0	12.1	5.2	2.7	1.1	0.7	0.7	0.1	0.0	0.4	16	
	Day 3	44.7	32.5	11.4	5.5	2.7	1.1	0.5	0.5	0.1	0.0	0.4	16	
	Day 4	45.2	30.8	12.1	5.5	3.1	1.3	0.7	0.4	0.1	0.1	0.1	16	
	Day 5	42.6	32.5	11.8	6.7	2.8	1.7	0.3	0.7	0.1	0.0	0.3	17	
	Day 6	44.0	32.0	12.0	5.3	2.7	1.2	0.7	0.9	0.2	0.1	0.4	17	
	Day 7	43.5	33.2	11.0	5.1	3.0	1.6	0.7	0.4	0.1	0.2	0.7	17	
EPL	Day 1	42.5	30.0	12.5	5.6	5.6	0.6	2.5	0.6	0.0	0.0	0.0	17	160
	Day 2	42.5	30.0	14.3	7.5	1.8	1.8	0.6	0.0	1.2	0.0	0.0	17	
	Day 3	41.2	33.7	11.8	5.0	2.5	3.1	0.6	1.2	0.6	0.0	0.0	17	
	Day 4	42.5	31.2	13.7	6.8	3.7	1.2	0.6	0.0	0.0	0.0	0.0	16	
	Day 5	42.5	33.7	10.6	7.5	3.1	1.2	0.0	0.6	0.6	0.0	0.0	16	
	Day 6	41.2	30.0	13.7	6.2	5.0	1.2	1.2	0.6	0.0	0.0	0.6	17	
	Day 7	49.3	32.5	11.2	1.8	2.5	0.6	0.0	0.6	0.0	0.6	0.6	15	
ADF	Day 1	44.6	31.0	12.6	5.3	3.0	1.0	0.7	0.4	0.1	0.2	0.5	16	8369
	Day 2	44.5	30.9	12.8	5.2	2.8	1.1	0.8	0.5	0.2	0.1	0.6	17	
	Day 3	44.3	30.9	12.9	5.4	3.0	1.3	0.5	0.5	0.2	0.0	0.5	16	
	Day 4	43.7	31.7	12.7	5.0	2.9	1.7	0.7	0.5	0.2	0.1	0.4	16	
	Day 5	44.6	31.4	12.3	5.2	2.9	1.5	0.5	0.4	0.1	0.1	0.4	16	
	Day 6	45.5	30.2	12.7	5.3	2.8	1.3	0.7	0.5	0.1	0.1	0.3	16	
	Day 7	45.2	30.2	13.2	5.3	2.4	1.6	0.6	0.4	0.1	0.0	0.3	16	
DSF	Day 1	51.3	28.9	9.3	5.4	2.5	0.5	0.6	0.4	0.0	0.2	0.4	15	715
	Day 2	52.0	29.6	9.9	4.0	2.3	0.5	0.1	0.2	0.0	0.2	0.6	14	
	Day 3	52.1	28.3	9.9	5.8	1.6	1.1	0.1	0.1	0.1	0.1	0.2	14	
	Day 4	49.7	28.1	12.0	3.7	2.7	1.1	0.6	0.9	0.4	0.0	0.2	16	
	Day 5	48.9	30.0	10.4	5.1	2.9	0.6	0.5	0.5	0.1	0.1	0.2	15	
	Day 6	51.6	26.7	13.7	3.7	1.6	1.2	0.2	0.4	0.0	0.1	0.4	15	
	Day 7	51.0	28.3	11.6	4.3	2.3	0.9	0.4	0.4	0.0	0.0	0.4	15	

Table 1-6 Event vs Daily Ap Distribution for Special Prominences

----- Daily Ap Distribution -----														
Event	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
LPS	Day 1	42.3	<u>23.5</u>	15.8	7.2	5.5	2.1	0.8	1.7	0.4	0.0	0.4	20	234
	Day 2	41.4	<u>26.9</u>	14.1	5.9	3.8	2.9	0.0	0.8	0.8	0.4	2.5	22	
	Day 3	37.6	<u>28.2</u>	13.6	8.5	5.9	1.7	2.1	0.8	0.8	0.0	0.4	20	
	Day 4	34.1	<u>34.1</u>	14.9	8.5	2.9	2.5	0.4	0.4	0.0	1.2	0.4	19	
	Day 5	38.8	<u>31.6</u>	12.3	8.1	5.1	1.7	0.4	0.0	0.0	0.4	1.2	20	
	Day 6	43.5	<u>29.4</u>	14.5	4.2	2.5	1.7	1.2	1.2	0.0	0.0	1.2	18	
	Day 7	42.7	<u>26.9</u>	16.2	5.9	2.1	2.1	1.2	0.8	0.8	0.0	0.8	19	
SPY	Day 1	<u>54.3</u>	26.0	10.8	4.3	4.3	0.0	0.0	0.0	0.0	0.0	0.0	14	46
	Day 2	45.6	<u>21.7</u>	15.2	2.1	10.8	4.3	0.0	0.0	0.0	0.0	0.0	18	
	Day 3	36.9	<u>36.9</u>	6.5	6.5	8.6	2.1	0.0	0.0	2.1	0.0	0.0	19	
	Day 4	36.9	<u>39.1</u>	10.8	6.5	2.1	4.3	0.0	0.0	0.0	0.0	0.0	17	
	Day 5	<u>50.0</u>	30.4	4.3	4.3	2.1	6.5	2.1	0.0	0.0	0.0	0.0	16	
	Day 6	47.8	<u>23.9</u>	8.6	6.5	6.5	0.0	0.0	6.5	0.0	0.0	0.0	18	
	Day 7	34.7	<u>41.3</u>	8.6	0.0	6.5	2.1	2.1	2.1	0.0	0.0	2.1	20	
CRN	Day 1	41.6	<u>29.1</u>	12.5	4.1	4.1	4.1	4.1	0.0	0.0	0.0	0.0	18	24
	Day 2	25.0	<u>45.8</u>	8.3	8.3	0.0	12.5	0.0	0.0	0.0	0.0	0.0	21	
	Day 3	37.5	<u>29.1</u>	29.1	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	17	
	Day 4	45.8	<u>25.0</u>	12.5	8.3	4.1	4.1	0.0	0.0	0.0	0.0	0.0	17	
	Day 5	<u>62.5</u>	16.6	12.5	4.1	0.0	0.0	0.0	0.0	0.0	0.0	4.1	17	
	Day 6	<u>50.0</u>	29.1	0.0	4.1	0.0	8.3	4.1	0.0	0.0	0.0	4.1	23	
	Day 7	45.8	<u>33.3</u>	4.1	0.0	8.3	8.3	0.0	0.0	0.0	0.0	0.0	17	
MCP	Day 1	35.7	<u>35.7</u>	14.2	7.1	0.0	0.0	7.1	0.0	0.0	0.0	0.0	19	14
	Day 2	<u>57.1</u>	14.2	14.2	7.1	0.0	7.1	0.0	0.0	0.0	0.0	0.0	17	
	Day 3	<u>57.1</u>	21.4	14.2	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	16	
	Day 4	<u>50.0</u>	7.1	35.7	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	18	
	Day 5	42.8	<u>21.4</u>	28.5	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	Day 6	42.8	<u>21.4</u>	14.2	7.1	7.1	0.0	7.1	0.0	0.0	0.0	0.0	19	
	Day 7	<u>50.0</u>	28.5	14.2	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
CAP	Day 1	<u>85.7</u>	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	7
	Day 2	<u>100.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	
	Day 3	<u>57.1</u>	14.2	14.2	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	Day 4	<u>57.1</u>	0.0	28.5	0.0	14.2	0.0	0.0	0.0	0.0	0.0	0.0	17	
	Day 5	42.8	<u>28.5</u>	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2	31	
	Day 6	<u>57.1</u>	28.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2	30	
	Day 7	28.5	<u>42.8</u>	14.2	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	

Tables 1-7 through 1-9 are similar to the foregoing tables, but they show the *maximum* 3-hour ap percent frequency distributions.

Table 1-7 Event vs Maximum 3-Hour ap Distribution for Surges

Event	Days After	Maximum 3-hour ap Distribution Percent Frequency of Occurrence												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-81	81-110	111-130	131-150	>150		
ASR	Day 1	16.5	26.0	<u>18.3</u>	17.4	6.0	4.2	2.9	2.7	1.6	1.3	0.8	1.7	33	4235
	Day 2	17.1	27.6	<u>18.9</u>	15.9	4.8	3.8	3.3	2.5	1.8	1.0	0.7	2.0	32	
	Day 3	17.1	27.9	<u>18.0</u>	16.3	4.8	4.2	3.2	2.4	1.5	1.4	0.5	2.1	33	
	Day 4	15.8	27.6	<u>18.0</u>	16.4	5.6	4.3	2.7	2.9	1.9	1.2	1.1	2.0	33	
	Day 5	15.0	28.5	<u>18.2</u>	15.5	5.4	3.2	3.1	2.8	2.0	1.1	0.8	2.0	33	
	Day 6	16.1	28.4	<u>18.2</u>	15.3	5.4	4.6	2.7	3.0	1.7	1.0	0.9	2.0	33	
	Day 7	17.5	28.1	<u>17.5</u>	14.8	5.1	4.5	2.9	3.2	1.5	1.1	1.0	2.1	33	
BSL	Day 1	17.1	25.7	<u>22.1</u>	14.2	2.1	4.2	3.5	6.4	1.4	2.8	0.0	0.0	31	140
	Day 2	15.7	26.4	<u>13.5</u>	16.4	5.7	4.2	5.0	1.4	5.7	2.8	0.0	2.8	38	
	Day 3	14.2	26.4	<u>17.1</u>	19.2	5.0	3.5	2.1	2.8	2.1	2.8	0.0	4.2	38	
	Day 4	12.1	19.2	<u>19.2</u>	22.1	8.5	5.0	2.1	6.4	0.7	1.4	0.7	2.1	37	
	Day 5	16.4	22.1	<u>20.0</u>	21.4	4.2	5.7	2.8	2.1	1.4	1.4	1.4	0.7	32	
	Day 6	20.7	29.2	<u>17.8</u>	10.7	5.0	5.0	2.1	3.5	0.7	0.7	2.1	2.1	33	
	Day 7	12.1	27.1	<u>18.5</u>	16.4	3.5	4.2	2.1	7.8	3.5	1.4	0.7	2.1	37	
DSD	Day 1	17.5	28.1	<u>18.0</u>	14.5	4.8	4.5	3.1	3.1	1.4	1.2	1.2	2.1	33	2848
	Day 2	17.3	28.4	<u>17.0</u>	13.3	5.7	4.9	2.9	3.4	2.1	1.3	0.8	2.3	34	
	Day 3	18.5	25.0	<u>18.0</u>	14.1	6.1	4.2	3.2	3.8	1.9	1.7	0.7	2.2	34	
	Day 4	17.4	26.6	<u>17.6</u>	14.7	5.9	3.6	3.8	3.4	1.7	1.4	0.9	2.4	34	
	Day 5	17.3	25.3	<u>17.6</u>	16.0	5.4	3.9	3.8	4.0	1.7	1.4	0.6	2.4	34	
	Day 6	17.9	25.6	<u>17.6</u>	15.5	3.0	4.5	3.3	3.6	1.9	1.0	0.8	2.7	34	
	Day 7	17.2	26.0	<u>18.0</u>	16.1	5.1	3.8	3.3	3.5	1.8	1.3	0.9	2.2	34	
BSD	Day 1	15.8	23.4	<u>17.6</u>	13.9	7.5	3.3	3.6	3.3	3.6	2.1	1.2	4.2	41	329
	Day 2	13.3	28.2	<u>16.4</u>	13.6	8.2	5.4	2.4	3.0	3.0	1.5	1.2	3.3	38	
	Day 3	15.1	25.2	<u>18.5</u>	17.9	5.7	3.6	2.1	3.9	1.8	1.8	0.6	3.3	36	
	Day 4	16.4	27.3	<u>15.8</u>	18.8	3.9	6.3	2.4	3.0	1.2	1.5	0.6	2.4	34	
	Day 5	14.5	25.8	<u>20.6</u>	19.4	3.3	3.3	3.9	2.4	2.4	0.9	0.0	3.0	35	
	Day 6	15.5	30.6	<u>16.1</u>	16.7	5.4	4.5	0.6	2.4	2.4	2.1	0.9	2.4	34	
	Day 7	17.3	27.6	<u>20.0</u>	17.9	3.9	3.6	2.1	3.0	1.5	0.3	0.0	2.4	30	

Table 1-8 Event vs Maximum 3-Hour ap Distribution for Prominence/Filaments

		Maximum 3-hour ap Distribution														
Event	Days After	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150	Mean ap	Event Count	
APR	Day 1	18.1	27.4	17.0	16.1	5.3	3.9	3.2	3.1	1.5	1.0	1.3	1.5	32	2413	
	Day 2	19.2	27.1	17.9	14.7	5.5	4.0	3.3	3.1	1.4	0.8	1.1	1.4	31		
	Day 3	17.6	28.1	16.9	16.4	4.9	4.5	2.9	3.1	1.8	1.4	0.7	1.1	31		
	Day 4	16.7	28.9	17.7	15.5	4.6	4.5	3.1	3.2	1.7	1.7	0.8	1.0	31		
	Day 5	15.8	26.4	18.5	16.0	5.6	5.3	3.0	3.7	1.4	1.5	0.8	1.3	33		
	Day 6	17.1	26.8	17.2	17.1	4.6	4.4	3.3	3.1	1.5	1.3	1.3	1.6	33		
	Day 7	16.4	28.4	19.0	15.8	4.8	3.6	2.4	3.1	1.4	1.2	1.2	2.2	33		
EPL	Day 1	14.3	28.1	17.5	15.0	6.8	5.0	2.5	3.7	0.0	1.2	3.7	1.8	36	160	
	Day 2	15.6	29.3	16.8	12.5	8.7	1.8	6.2	3.1	1.2	1.2	1.8	1.2	33		
	Day 3	17.5	23.7	17.5	16.2	7.5	5.6	3.1	3.1	1.2	1.8	1.2	1.2	34		
	Day 4	13.1	33.1	16.2	15.6	5.0	5.6	4.3	4.3	0.6	0.0	1.2	0.6	30		
	Day 5	17.5	24.3	18.1	18.1	5.6	4.3	3.7	3.7	1.8	0.6	1.2	0.6	32		
	Day 6	15.6	25.0	20.6	16.2	3.7	4.3	4.3	3.1	1.8	1.2	1.2	2.5	35		
	Day 7	16.2	33.7	17.5	18.1	5.6	2.5	1.2	0.6	1.2	0.6	0.0	2.5	28		
ADF	Day 1	17.3	27.2	18.3	15.1	4.9	4.6	3.3	3.1	1.9	0.8	0.9	1.9	33	8369	
	Day 2	17.5	26.6	18.4	14.7	5.5	4.7	3.4	3.4	1.5	0.9	1.1	1.7	33		
	Day 3	18.5	26.2	17.7	14.8	5.6	4.0	3.2	4.0	1.9	1.0	0.8	1.8	33		
	Day 4	17.5	26.6	18.7	15.0	5.3	3.8	3.0	3.7	1.7	1.2	0.9	1.9	33		
	Day 5	17.1	27.8	18.5	15.0	5.1	3.8	3.3	3.4	1.7	1.2	0.7	1.7	32		
	Day 6	17.9	27.4	18.0	15.2	4.9	3.9	3.5	3.4	1.6	1.1	0.8	1.8	32		
	Day 7	17.4	27.9	17.3	15.8	5.4	4.5	2.7	2.7	1.6	1.4	1.1	1.5	32		
DSF	Day 1	16.9	33.7	18.0	13.7	4.3	4.6	2.7	1.8	0.9	0.8	1.2	0.9	29	715	
	Day 2	19.8	33.0	17.4	13.1	4.4	3.3	2.5	2.7	0.9	0.4	0.9	0.9	28		
	Day 3	24.3	28.3	15.9	12.8	5.3	3.0	2.6	3.7	0.9	0.9	0.6	0.9	28		
	Day 4	22.3	27.5	14.9	13.9	5.3	4.3	2.6	3.6	1.3	0.9	0.6	2.0	32		
	Day 5	18.1	32.0	13.7	13.5	5.4	5.1	4.1	3.0	1.5	1.2	0.4	1.3	31		
	Day 6	20.0	31.3	14.8	14.5	6.4	5.0	2.0	2.5	0.6	0.5	0.8	1.1	29		
	Day 7	20.2	33.7	15.9	12.1	4.4	4.0	2.3	1.9	2.3	0.6	0.6	1.2	29		

Table 1-9 Event vs Maximum 3-Hour ap Distribution for Special Prominences

		Maximum 3-hour ap Distribution													
	Days	Percent Frequency of Occurrence												Mean	Event
Event	After	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-81	81-110	111-130	131-150	>150	ap	Count
LPS	Day 1	13.2	27.7	<u>12.8</u>	12.8	8.1	6.8	3.4	5.1	3.8	0.8	2.1	2.9	40	234
	Day 2	10.2	33.3	<u>14.1</u>	14.5	3.4	4.7	4.2	3.4	2.9	2.1	1.2	5.5	44	
	Day 3	14.9	25.2	<u>16.6</u>	12.3	5.1	5.9	3.4	4.7	3.4	3.8	1.7	2.5	39	
	Day 4	12.8	20.0	<u>17.9</u>	20.0	7.6	5.5	2.5	6.8	1.2	2.1	0.4	2.5	38	
	Day 5	11.9	23.9	<u>20.5</u>	14.9	6.8	7.2	3.4	3.8	1.7	2.1	1.7	1.7	39	
	Day 6	14.9	27.7	<u>17.0</u>	13.2	5.5	8.1	5.9	0.4	2.5	0.0	0.8	3.4	37	
	Day 7	11.9	31.6	<u>13.6</u>	14.5	4.2	9.4	2.5	3.4	2.1	0.4	1.7	4.2	39	
SPY	Day 1	21.7	<u>32.6</u>	8.6	19.5	8.6	0.0	4.3	2.1	2.1	0.0	0.0	0.0	28	46
	Day 2	23.9	<u>28.2</u>	8.6	15.2	4.3	0.0	6.5	2.1	6.5	0.0	0.0	4.3	35	
	Day 3	17.3	17.3	<u>19.5</u>	17.3	4.3	4.3	6.5	4.3	4.3	0.0	2.1	2.1	38	
	Day 4	15.2	23.9	<u>21.7</u>	17.3	4.3	6.5	6.5	0.0	2.1	2.1	0.0	0.0	31	
	Day 5	23.9	21.7	<u>23.9</u>	10.8	0.0	4.3	2.1	2.1	6.5	2.1	2.1	0.0	32	
	Day 6	21.7	<u>30.4</u>	15.2	6.5	2.1	2.1	8.6	2.1	0.0	0.0	4.3	6.5	40	
	Day 7	23.9	8.6	<u>21.7</u>	21.7	4.3	0.0	0.0	2.1	6.5	2.1	2.1	6.5	44	
CRN	Day 1	8.3	29.1	<u>20.8</u>	20.8	4.1	4.1	0.0	0.0	4.1	8.3	0.0	0.0	36	24
	Day 2	4.1	25.0	<u>37.5</u>	8.3	0.0	4.1	0.0	8.3	12.5	0.0	0.0	0.0	37	
	Day 3	8.3	33.3	<u>25.0</u>	25.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	4.1	31	
	Day 4	25.0	20.8	<u>12.5</u>	16.6	4.1	12.5	0.0	0.0	4.1	4.1	0.0	0.0	32	
	Day 5	16.6	<u>37.5</u>	18.6	8.3	8.3	4.1	0.0	4.1	0.0	0.0	0.0	4.1	33	
	Day 6	16.6	33.3	<u>12.5</u>	20.8	0.0	0.0	0.0	8.3	0.0	0.0	0.0	8.3	44	
	Day 7	12.5	<u>37.5</u>	25.0	4.1	0.0	0.0	8.3	4.1	0.0	0.0	0.0	8.3	36	
MDP	Day 1	14.2	21.4	14.2	<u>28.5</u>	7.1	0.0	7.1	0.0	0.0	0.0	7.1	0.0	37	14
	Day 2	21.4	28.5	<u>7.1</u>	7.1	14.2	7.1	7.1	0.0	0.0	0.0	0.0	7.1	38	
	Day 3	28.5	21.4	<u>21.4</u>	14.2	7.1	0.0	0.0	0.0	0.0	0.0	0.0	7.1	33	
	Day 4	21.4	28.5	<u>7.1</u>	14.2	0.0	14.2	0.0	7.1	0.0	0.0	0.0	7.1	41	
	Day 5	14.2	14.2	<u>35.7</u>	0.0	7.1	14.2	14.2	0.0	0.0	0.0	0.0	0.0	33	
	Day 6	14.2	28.5	<u>14.2</u>	14.2	0.0	7.1	7.1	0.0	7.1	0.0	0.0	7.1	40	
	Day 7	14.2	<u>42.8</u>	14.2	0.0	14.2	7.1	0.0	0.0	0.0	0.0	7.1	0.0	31	
CAP	Day 1	<u>57.1</u>	14.2	14.2	0.0	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	7
	Day 2	<u>71.4</u>	28.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	
	Day 3	28.5	0.0	<u>42.8</u>	14.2	0.0	0.0	0.0	0.0	14.2	0.0	0.0	0.0	30	
	Day 4	0.0	<u>57.1</u>	0.0	14.2	0.0	0.0	0.0	14.2	0.0	14.2	0.0	0.0	40	
	Day 5	14.2	14.2	14.2	<u>28.5</u>	0.0	14.2	0.0	0.0	0.0	0.0	0.0	14.2	84	
	Day 6	14.2	28.5	<u>28.5</u>	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2	76	
	Day 7	0.0	0.0	<u>42.8</u>	28.5	28.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	

Tables 1-10 through 1-18 are similar to Tables 1-1 through 1-3, but they summarize results by *solar longitude*, *phase of solar cycle*, and *size*. For limb events, size is measured in hundredths of solar radii; for disk events, size is measured in whole degrees.

Table 1-10 Event vs Mean Ap For Surges by Longitude

Event	Longitude Label and Interval	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
ASR	East Limb (90E-61E)	16	16	17	17	17	17	18	32	31	33	34	34	35	35	1949
	West Limb (61W-90W)	17	17	16	16	16	16	16	33	33	32	33	33	32	31	2286
BSL	East Limb (90E-61E)	17	21	22	19	16	19	20	34	42	42	41	31	38	45	66
	West Limb (61W-90W)	13	16	17	17	16	14	15	28	34	34	34	33	28	29	74
DSD	East Limb (90E-61E)	16	16	17	20	18	17	16	33	33	36	39	35	34	32	177
	E. Central (60E-31E)	15	16	16	17	18	18	16	31	34	33	34	37	38	33	559
	Central (30E-30W)	17	17	17	17	17	17	18	33	34	35	35	34	34	36	1426
	W. Central (31W-60W)	18	17	16	16	17	16	16	36	34	35	32	34	32	32	484
	West Limb (61W-90W)	17	16	16	16	15	14	15	33	31	32	32	31	28	29	202
BSD	East Limb (90E-61E)	19	23	19	18	19	20	17	38	43	39	37	38	40	35	86
	E. Central (60E-31E)	20	17	14	17	18	17	14	43	33	28	36	37	35	26	49
	Central (30E-30W)	20	20	17	21	20	16	14	43	42	38	40	40	31	28	49
	W. Central (31W-60W)	16	15	23	15	18	19	17	36	32	47	29	35	36	33	37
	West Limb (61W-90W)	20	18	16	15	15	14	15	42	36	33	29	29	29	29	108

Table 1-11 Event vs Mean Ap For Prominence/Filaments by Longitude

Event	Longitude Label and Interval	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
APR	East Limb (90E-61E)	16	16	16	16	17	17	17	31	31	31	32	33	34	34	1198
	West Limb (61W-90W)	17	16	16	16	16	16	16	34	32	32	31	32	32	32	1215
EPL	East Limb (90E-61E)	19	18	17	17	17	18	14	39	36	32	31	31	33	27	76
	West Limb (61W-90W)	16	15	17	15	16	17	16	33	31	35	30	32	36	30	84
ADF	East Limb (90E-61E)	16	17	17	17	17	17	17	32	34	33	34	34	34	34	553
	E. Central (60E-31E)	16	16	16	16	16	16	16	32	32	32	33	32	32	32	1697
	Central (30E-30W)	17	17	17	16	16	16	16	34	34	34	33	32	33	33	3940
	W. Central (31W-60W)	17	16	16	16	16	15	16	34	33	32	33	32	30	30	1656
	West Limb (61W-90W)	17	16	16	17	16	16	15	34	32	33	34	32	31	31	523
DSF	East Limb (90E-61E)	17	16	17	24	21	17	23	34	30	32	50	39	33	47	27
	E. Central (60E-31E)	14	14	15	15	16	14	13	28	27	29	32	33	26	27	126
	Central (30E-30W)	15	15	14	16	15	15	15	29	30	29	31	31	30	29	397
	W. Central (31W-60W)	15	13	13	15	14	13	14	29	26	26	29	27	27	27	137
	West Limb (61W-90W)	13	13	13	14	21	15	16	26	25	27	28	40	28	28	28

Table 1-12 Event vs Mean Ap For Special Prominences by Longitude

Event	Longitude Label and Interval	<---- Mean Daily Ap ---->							<- Mean Maximum 3-hour ap >							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
LPS	East Limb (90E-61E)	18	15	16	18	22	22	23	37	29	32	36	42	44	49	108
	E. Central (61E-31E)	33	78	40	19	24	16	20	83	>99	78	38	56	32	48	9
	Central (30E-30W)	30	47	39	28	21	16	17	54	94	76	50	44	30	34	14
	W. Central (31W-60W)	18	35	38	28	24	12	12	29	77	85	48	46	20	22	4
	West Limb (61W-90W)	19	21	19	19	17	16	15	38	42	37	38	33	31	30	99
SPY	East Limb (90E-61E)	16	19	16	16	12	23	29	31	41	31	30	27	58	66	20
	West Limb (61W-90W)	12	16	21	18	19	15	14	23	31	44	32	36	27	26	26
CRN	East Limb (90E-61E)	21	25	16	18	12	21	19	37	44	28	34	23	44	37	13
	West Limb (61W-90W)	15	15	18	18	22	25	15	34	29	33	29	45	45	34	11
MDP	East Limb (90E-61E)	14	18	20	12	16	31	19	28	46	40	27	32	64	48	6
	West Limb (61W-90W)	22	15	13	22	17	11	10	43	32	27	53	34	22	19	8
CAP	East Limb (90E-61E)	14	8	20	35	85	85	31	35	12	50	96	>99	>99	48	2
	West Limb (61W-90W)	6	6	11	10	10	9	12	9	9	21	17	26	21	28	5

Table 1-13 Event vs Mean Ap For Surges by Phase of Solar Cycle

Event	Year Label and Interval	<---- Mean Daily Ap ---->							<- Mean Maximum 3-hour ap >							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
ASR	Beginning (1975-77)	14	13	14	14	13	14	15	27	27	28	28	26	29	31	354
	Rise (1977-80)	15	15	15	15	15	15	15	31	31	31	30	30	31	30	1282
	Maximum (1980-82)	18	18	19	19	19	19	19	36	35	36	38	38	38	38	1209
	Fall (1983-84)	18	18	18	18	18	18	18	36	35	35	35	36	35	37	843
	End (1984-86)	15	14	14	15	16	15	14	29	29	29	31	31	28	28	547
BSL	Beginning (1975-77)	23	27	16	15	15	10	9	51	52	25	20	36	28	27	4
	Rise (1977-80)	14	15	13	14	17	12	16	27	33	26	29	31	24	35	41
	Maximum (1980-82)	17	21	25	21	17	19	16	34	44	49	42	35	38	35	60
	Fall (1983-84)	12	16	17	18	17	20	22	26	31	34	38	33	38	41	29
	End (1984-86)	13	14	10	18	8	8	21	27	33	21	46	14	15	55	6
DSD	Beginning (1975-77)	14	12	14	14	15	18	16	29	24	28	29	31	37	33	297
	Rise (1977-80)	15	15	16	15	15	15	14	31	32	33	32	31	31	30	630
	Maximum (1980-82)	19	19	18	20	20	19	19	37	37	36	39	38	37	37	708
	Fall (1983-84)	20	20	19	19	19	19	21	39	40	39	39	40	40	42	458
	End (1984-86)	14	15	16	16	15	14	14	30	31	33	32	32	30	29	755
BSD	Beginning (1975-77)	21	20	16	16	18	17	15	44	39	30	31	35	36	32	80
	Rise (1977-80)	17	20	20	17	17	17	14	38	41	47	35	35	33	27	86
	Maximum (1980-82)	22	19	16	18	19	18	17	44	36	31	35	37	35	34	81
	Fall (1983-84)	19	20	18	18	17	19	16	39	37	36	35	35	39	31	46
	End (1984-86)	16	16	16	17	14	12	13	35	31	32	32	29	22	24	36

Table 1-14 Event vs Mean Ap For Prominence/Filaments by Phase of Solar Cycle

Event	Year Label and Interval	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
APR	Beginning (1975-77)	14	13	12	13	13	14	14	28	26	23	26	26	27	27	279
	Rise (1977-80)	16	15	15	16	17	16	16	33	32	32	31	33	32	32	720
	Maximum (1980-82)	20	18	19	17	16	17	19	38	35	36	33	32	33	38	390
	Fall (1983-84)	18	19	20	21	21	20	17	35	38	38	41	44	40	34	279
	End (1984-86)	15	15	15	15	16	17	18	29	29	29	29	31	34	33	745
EPL	Beginning (1975-77)	18	13	13	11	11	24	16	38	25	26	18	22	49	31	14
	Rise (1977-80)	15	17	18	16	17	15	14	34	35	37	32	31	28	30	57
	Maximum (1980-82)	17	17	16	12	15	13	13	36	36	31	24	30	26	24	33
	Fall (1983-84)	18	18	19	20	20	23	20	34	33	37	39	40	49	36	34
	End (1984-86)	21	17	15	16	15	18	11	43	32	30	33	29	34	20	22
ADF	Beginning (1975-77)	14	15	14	16	15	15	13	27	30	28	33	31	30	27	622
	Rise (1977-80)	15	15	14	15	15	15	14	31	30	30	31	31	30	29	1584
	Maximum (1980-82)	19	20	19	19	18	18	19	39	39	38	36	36	36	38	1485
	Fall (1983-84)	18	18	19	19	19	19	20	36	36	37	39	38	38	39	1488
	End (1984-86)	16	16	16	15	15	15	15	31	31	31	30	29	29	29	3190
DSF	Beginning (1975-77)	14	11	10	15	17	16	13	26	22	20	33	36	28	26	24
	Rise (1977-80)	13	12	16	16	19	15	16	25	22	34	39	39	31	29	40
	Maximum (1980-82)	17	20	19	18	22	17	19	36	39	35	37	44	35	37	57
	Fall (1983-84)	19	19	20	23	18	17	18	36	36	40	47	37	35	38	103
	End (1984-86)	14	13	13	14	13	14	13	27	26	25	27	28	26	26	491

Table 1-15 Event vs Mean Ap For Special Prominences by Phase of Solar Cycle

Event	Year Label and Interval	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
LPS	Beginning (1975-77)	10	10	17	23	17	15	7	18	16	42	47	37	33	15	10
	Rise (1977-80)	18	20	18	18	14	13	13	40	43	38	36	28	27	27	64
	Maximum (1980-82)	22	26	21	21	24	24	24	45	51	42	39	47	47	52	97
	Fall (1983-84)	18	19	21	20	23	17	19	36	37	39	40	40	34	37	50
	End (1984-86)	20	24	14	13	14	14	17	35	49	32	26	31	22	32	13
SPY	Beginning (1975-77)	9	19	16	25	18	14	8	15	32	22	32	32	18	12	1
	Rise (1977-80)	7	13	15	9	9	14	13	14	34	36	16	16	29	25	18
	Maximum (1980-82)	19	21	23	23	23	24	27	36	38	42	42	47	55	61	23
	Fall (1983-84)	15	20	17	19	6	4	17	32	32	37	41	21	11	32	3
	End (1984-86)	5	5	5	7	8	9	15	12	12	7	15	12	18	32	1
CRN	Rise (1977-80)	13	13	13	22	9	19	19	26	26	22	44	18	61	49	4
	Maximum (1980-82)	21	27	22	20	19	21	15	42	49	38	36	36	41	34	14
	Fall (1983-84)	15	11	10	6	18	30	20	29	19	19	13	38	43	33	6
MDP	Beginning (1975-77)	9	5	5	8	7	5	12	18	11	11	15	15	8	27	2
	Rise (1977-80)	26	11	11	14	17	25	15	54	26	27	29	32	61	47	4
	Maximum (1980-82)	18	29	28	26	21	25	13	30	71	56	63	44	47	25	5
	End (1984-86)	16	12	11	17	15	11	13	36	19	16	40	29	20	23	3
CAP	Beginning (1975-77)	6	6	10	7	12	8	10	9	10	22	12	35	19	24	3
	Rise (1977-80)	7	5	13	16	7	10	14	9	8	21	25	14	24	36	2
	Maximum (1980-82)	10	10	36	48	>99	>99	36	22	15	94	>99	>99	>99	48	1
	End (1984-86)	17	5	4	21	25	16	25	48	9	6	80	56	27	48	1

Table 1-16 Event vs Mean Ap For Surges by Size

Event	Size Label and Interval	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
ASR	1 - 14	16	16	17	17	17	17	17	33	32	33	33	33	33	33	4235
BSL	15 - 29	15	18	19	18	16	17	18	31	36	37	37	32	33	37	134
	30 - 44	13	34	31	18	15	16	13	33	80	65	36	27	38	25	5
	45 - 59	11	38	22	22	14	10	10	32	67	32	27	32	18	18	1
DSD	1 - 14	17	17	17	17	17	17	17	33	33	34	34	34	34	34	2814
	15 - 29	15	17	19	27	21	18	19	29	34	39	54	42	32	40	32
	30 - 44	34	67	24	11	13	15	20	63	>99	44	18	26	39	32	2
BSD	1 - 14	20	19	18	17	17	17	15	41	38	37	34	35	34	30	313
	15 - 29	15	17	12	12	17	16	16	31	31	21	26	39	34	32	15
	30 - 44	14	13	15	11	21	9	27	22	18	32	18	32	18	48	1

Table 1-17 Event vs Mean Ap For Prominence/Filaments by Size

Event	Size Label and Interval	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
APR	1 - 14	16	16	16	16	17	17	17	32	31	31	31	33	33	33	2371
	15 - 29	17	21	19	19	19	19	20	32	39	37	37	38	36	37	39
	30 - 44	13	27	28	30	33	14	7	23	51	62	54	75	23	11	2
	45 - 59	12	24	13	6	9	4	3	27	67	22	9	18	7	5	1
EPL	1 - 14	16	19	19	16	15	16	13	32	38	38	33	29	32	25	47
	15 - 29	18	17	17	15	18	19	16	39	33	33	30	35	38	29	82
	30 - 44	15	13	14	14	12	11	15	30	25	28	25	21	24	29	24
	45 - 59	21	13	14	22	24	26	16	39	30	30	39	47	54	40	7
ADF	1 - 14	16	17	16	16	16	16	16	33	33	33	33	32	32	32	7887
	15 - 29	18	17	17	16	15	15	15	36	34	34	32	31	31	30	437
	30 - 44	12	14	19	17	17	18	17	24	29	32	36	34	40	35	38
	45 - 59	15	15	26	17	13	13	13	23	26	68	32	21	28	22	5
	60 - 74	5	6	5	37	29	12	29	12	12	7	99	67	22	67	1
	90 - 100	48	14	15	34	12	10	4	67	22	32	94	39	18	7	1
DSF	1 - 14	15	15	14	15	15	14	14	29	29	28	31	31	29	29	630
	15 - 29	13	14	14	17	15	15	16	25	27	26	35	30	27	30	65
	30 - 44	13	13	15	23	16	18	17	22	22	33	46	33	35	31	14
	45 - 59	24	10	9	14	14	28	29	43	23	14	27	27	51	61	4
	60 - 74	15	25	12	10	9	21	19	23	45	16	15	19	40	39	2

Table 1-18 Event vs Mean Ap For Special Prominences by Size

Event	Size Label and Interval	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
LPS	1 - 14	19	22	19	19	20	19	19	39	45	38	37	39	37	39	215
	15 - 29	23	16	24	23	16	14	16	46	36	53	50	36	26	40	16
	30 - 44	23	57	53	9	25	43	20	27	94	99	18	56	94	39	1
	45 - 59	50	18	11	8	6	18	39	94	27	18	32	15	39	56	1
	75 - 89	10	4	19	42	29	14	11	15	5	48	80	56	32	27	1
SPY	1 - 14	12	14	11	11	10	19	15	26	34	27	18	21	38	30	11
	15 - 29	12	17	20	17	11	15	24	23	35	40	33	23	35	54	23
	30 - 44	18	19	27	21	27	22	14	32	32	48	36	57	54	31	9
	45 - 59	18	31	25	29	39	30	29	35	47	40	48	71	50	53	3
CRN	1 - 14	19	22	18	18	19	20	15	37	39	32	34	38	37	31	19
	15 - 29	14	16	17	13	9	32	25	30	29	26	20	15	74	54	5
MDP	1 - 14	19	17	16	18	16	19	14	37	38	33	41	33	40	31	14
CAP	1 - 14	8	6	14	17	31	30	17	16	10	30	40	84	76	34	7

Chapter 2

RELATIONSHIP BETWEEN RADIO EVENTS AND GEOMAGNETIC INDEX

2-1 INTRODUCTION. In addition to observing the Sun's activity in the visible part of the spectrum (such as flares), solar observers also monitor radio emissions to detect significant solar events. Solar observatories around the world use radiometers to measure a wide variety of radio frequencies. Since radiometers are not accurate enough to pinpoint the active region of the sun associated with the burst, a longitude is not reported with radio event data. Solar experts have classified bursts of radio energy into two categories: (1) discrete frequency bursts (fixed frequency), and (2) sweep frequency bursts (varying intensity with frequency and time).

Discrete radio burst reports for this study are from a combination of USAFETAC's SESS Climatic Database and NGDC's database. Sweep bursts are from USAFETAC's database exclusively. Observations from AWS and international stations are included. The period of record for the data is 11 years (June 1976 to September 1986).

Peak radio burst reports were merged with 3-hour ap values for 7 days after each event. Next, daily Ap (mean of 8 3-hour ap values) and maximum 3-hour ap values for each 24-hour period were calculated. The resultant dataset was analyzed with respect to event type, and importance (or energy). Contingency tables of means and percent frequency distributions of Ap summarize the results.

2-2 CONDITIONAL CLIMATOLOGY TABLES.

Discrete bursts are divided into six categories based on received power (solar flux units, 10^{-22} Watts per meter squared per hertz). Table 2-1 summarizes mean Ap conditions for 7 days following a discrete burst. The format for this table is the same as those in Chapter 1.

Tables 2-2 and 2-3 show the Ap distributions associated with each solar flux category. The format is the same as for previous distribution tables.

Table 2-1 Solar Flux vs Mean Ap for Radio Bursts

Solar Flux Units	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Burst Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
0- 100	16	15	15	15	15	16	16	31	31	31	31	31	31	32	8900
101- 500	17	17	17	17	17	17	17	33	34	34	34	35	34	33	4373
501- 1000	18	17	18	18	17	17	17	36	35	36	36	35	35	35	1312
1001- 5000	18	18	20	19	19	17	17	36	37	40	38	37	35	34	1299
5001-10000	19	20	20	23	22	20	20	41	42	40	44	43	38	39	232
>10000	18	22	23	21	20	19	18	38	43	46	44	41	39	36	333

Table 2-2 Solar Flux vs Daily Ap Distribution for Radio Bursts

Daily Ap Distribution														
Solar Flux Units	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
0- 100	Day 1	47.5	<u>31.0</u>	10.7	4.7	2.5	1.2	0.6	0.4	0.2	0.1	0.5	16	6900
	Day 2	48.0	<u>30.1</u>	11.3	5.0	2.2	1.3	0.6	0.5	0.2	0.1	0.4	15	
	Day 3	47.8	<u>30.7</u>	11.0	4.9	2.3	1.1	0.5	0.4	0.2	0.2	0.5	15	
	Day 4	48.0	<u>30.8</u>	11.1	4.5	2.4	1.0	0.4	0.5	0.2	0.1	0.4	15	
	Day 5	48.2	<u>30.1</u>	11.1	5.0	2.3	1.2	0.5	0.4	0.2	0.1	0.4	15	
	Day 6	48.0	<u>30.0</u>	11.3	4.8	2.3	1.2	0.6	0.5	0.2	0.2	0.4	16	
	Day 7	46.9	<u>30.8</u>	11.5	4.9	2.5	1.2	0.4	0.5	0.3	0.1	0.5	16	
101- 500	Day 1	45.2	<u>30.5</u>	12.0	5.4	2.8	1.4	0.7	0.5	0.1	0.2	0.6	17	4373
	Day 2	44.4	<u>31.5</u>	11.0	5.6	3.0	1.8	0.7	0.5	0.3	0.1	0.7	17	
	Day 3	44.6	<u>30.2</u>	12.1	5.9	2.9	1.3	0.9	0.6	0.2	0.1	0.5	17	
	Day 4	44.7	<u>29.5</u>	12.3	5.8	3.2	1.5	0.8	0.5	0.2	0.3	0.6	17	
	Day 5	43.7	<u>30.5</u>	12.4	5.6	3.0	1.4	0.8	0.8	0.3	0.2	0.7	17	
	Day 6	44.8	<u>31.1</u>	11.3	5.5	3.0	1.4	0.8	0.6	0.1	0.1	0.6	17	
	Day 7	44.9	<u>31.8</u>	11.4	4.7	2.8	1.5	0.8	0.7	0.0	0.1	0.8	17	
501- 1000	Day 1	42.9	<u>30.0</u>	12.5	5.9	3.7	1.9	0.9	0.6	0.1	0.5	0.4	18	1312
	Day 2	43.2	<u>30.5</u>	11.8	6.0	4.1	1.5	0.6	0.8	0.3	0.3	0.4	17	
	Day 3	42.1	<u>29.5</u>	12.4	6.9	4.2	1.9	0.7	0.9	0.3	0.0	0.5	18	
	Day 4	42.0	<u>28.8</u>	12.6	7.8	3.9	1.6	0.9	0.6	0.6	0.0	0.6	18	
	Day 5	41.7	<u>31.9</u>	12.6	6.2	3.4	1.6	0.5	0.4	0.2	0.3	0.6	17	
	Day 6	42.7	<u>30.1</u>	14.0	6.0	3.0	1.6	0.6	0.3	0.3	0.0	0.9	17	
	Day 7	44.1	<u>28.2</u>	13.7	6.7	3.5	1.6	0.9	0.5	0.1	0.1	0.2	17	
1001- 5000	Day 1	42.1	<u>31.3</u>	12.0	6.3	3.0	2.0	0.8	0.7	0.4	0.0	0.8	18	1299
	Day 2	42.4	<u>30.1</u>	11.4	6.7	4.6	1.7	0.4	0.7	0.2	0.3	1.0	18	
	Day 3	39.7	<u>30.7</u>	12.5	6.7	4.3	2.0	0.8	0.6	0.3	0.3	1.4	20	
	Day 4	39.0	<u>33.3</u>	11.6	6.3	4.3	1.6	0.6	0.9	0.2	0.4	1.3	19	
	Day 5	39.5	<u>31.4</u>	12.6	6.6	4.5	2.4	0.8	1.0	0.1	0.0	0.6	19	
	Day 6	39.4	<u>32.7</u>	13.7	6.7	3.6	2.1	0.5	0.5	0.0	0.0	0.3	17	
	Day 7	42.1	<u>31.9</u>	13.3	5.4	3.0	1.7	0.9	0.6	0.2	0.3	0.0	17	
5001-10000	Day 1	43.1	<u>25.4</u>	12.9	7.3	3.8	1.2	2.1	2.1	1.2	0.0	0.4	19	232
	Day 2	34.0	<u>31.4</u>	14.6	10.3	5.1	0.4	1.7	0.8	0.4	0.0	0.8	20	
	Day 3	35.3	<u>35.3</u>	12.5	8.1	3.0	2.1	0.4	0.4	0.8	0.0	1.7	20	
	Day 4	35.7	<u>29.3</u>	14.2	8.1	5.6	2.5	0.8	0.4	0.8	0.0	2.1	23	
	Day 5	37.9	<u>29.3</u>	12.0	8.6	4.3	3.4	1.2	0.4	0.4	0.4	1.7	22	
	Day 6	36.2	<u>33.1</u>	14.2	6.4	3.0	3.0	0.4	0.4	1.7	0.0	1.2	20	
	Day 7	42.2	<u>29.7</u>	12.5	5.1	3.8	1.2	1.7	0.4	0.8	0.0	2.1	20	
>10000	Day 1	43.8	<u>30.9</u>	9.3	6.6	3.9	1.5	0.9	1.5	0.0	0.3	1.2	18	333
	Day 2	39.3	<u>30.6</u>	9.3	7.5	4.5	2.1	1.2	2.4	0.0	0.6	2.4	22	
	Day 3	38.1	<u>29.4</u>	11.4	5.4	4.5	4.2	0.9	3.3	0.3	0.3	2.1	23	
	Day 4	34.2	<u>33.9</u>	10.8	8.7	3.6	3.0	1.5	2.4	0.0	0.6	1.2	21	
	Day 5	39.6	<u>31.8</u>	10.5	8.4	4.2	1.5	0.9	0.3	0.0	0.0	2.7	20	
	Day 6	39.0	<u>33.9</u>	8.1	7.5	6.3	1.8	0.9	0.9	0.0	0.9	0.6	19	
	Day 7	41.4	<u>30.9</u>	12.6	5.1	5.7	1.8	0.6	1.2	0.0	0.3	0.3	18	

Table 2-3 Solar Flux vs Maximum 3-Hour ap Distribution for Radio Bursts

Solar Flux Units	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		Percent Frequency of Occurrence													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
0- 100	Day 1	19.3	28.1	<u>18.3</u>	14.6	4.3	3.9	2.7	2.6	1.9	0.9	1.0	1.8	31	8900
	Day 2	19.7	28.4	<u>17.8</u>	14.6	4.6	3.6	2.7	2.4	1.7	1.0	0.9	1.9	31	
	Day 3	19.3	29.0	<u>18.7</u>	13.9	4.6	3.2	3.0	2.5	1.7	0.9	0.9	1.7	31	
	Day 4	19.4	28.3	<u>18.3</u>	14.8	4.4	3.7	2.7	2.5	1.8	0.8	0.7	1.8	31	
	Day 5	20.0	28.3	<u>17.9</u>	14.2	4.5	4.0	2.8	2.4	1.7	1.0	0.8	1.8	31	
	Day 6	19.6	28.4	<u>18.1</u>	14.4	4.5	3.6	2.8	2.6	1.6	1.0	0.8	2.0	31	
	Day 7	19.0	27.8	<u>18.2</u>	14.6	5.1	3.7	2.9	2.6	1.7	1.0	0.8	1.9	32	
101- 500	Day 1	17.7	27.9	<u>17.9</u>	14.4	5.0	4.2	3.1	2.9	1.7	1.2	1.2	2.1	33	4373
	Day 2	16.8	27.6	<u>18.9</u>	14.5	4.5	4.0	3.3	2.7	2.7	1.1	1.0	2.3	34	
	Day 3	17.0	27.5	<u>17.3</u>	15.9	4.7	4.0	2.9	3.1	2.4	1.1	1.1	2.4	34	
	Day 4	17.4	27.3	<u>17.7</u>	14.2	5.5	3.6	3.3	2.9	2.4	1.3	1.0	2.6	34	
	Day 5	17.3	26.6	<u>18.0</u>	14.8	5.1	3.9	3.4	3.2	2.1	1.1	1.1	2.9	35	
	Day 6	17.5	26.2	<u>19.3</u>	14.7	5.0	4.0	3.3	2.8	1.9	1.2	1.0	2.4	34	
	Day 7	18.1	26.9	<u>18.8</u>	14.6	5.2	3.9	3.0	2.7	1.9	0.9	0.9	2.5	33	
501- 1000	Day 1	15.6	25.6	<u>17.9</u>	16.1	6.0	3.0	3.5	3.2	2.6	1.6	1.4	2.8	36	1312
	Day 2	16.6	26.5	<u>17.7</u>	13.7	5.3	5.9	3.7	3.2	2.0	1.0	1.3	2.4	35	
	Day 3	16.5	26.3	<u>16.2</u>	14.9	4.8	4.9	4.1	4.4	2.5	1.5	0.9	2.4	36	
	Day 4	17.1	24.6	<u>16.4</u>	15.5	5.0	5.3	3.8	4.4	1.8	1.3	2.0	2.2	36	
	Day 5	16.6	25.3	<u>16.3</u>	17.3	5.6	5.0	3.5	3.1	2.5	1.1	0.9	2.2	35	
	Day 6	19.1	23.7	<u>17.0</u>	16.6	5.3	4.9	2.8	3.2	2.2	0.9	1.6	2.2	35	
	Day 7	17.2	26.0	<u>17.9</u>	15.0	4.8	3.6	3.5	3.8	2.5	1.9	0.9	2.3	35	
1001- 5000	Day 1	17.2	24.0	<u>18.7</u>	13.9	5.4	5.6	4.6	2.5	2.5	1.6	0.7	2.8	36	1299
	Day 2	16.7	24.3	<u>18.0</u>	15.3	4.6	4.3	4.7	3.3	2.3	1.5	1.6	2.6	37	
	Day 3	16.0	21.7	<u>19.0</u>	15.0	5.5	5.4	4.3	3.2	1.9	2.0	1.6	3.8	40	
	Day 4	15.5	23.1	<u>19.1</u>	15.7	5.5	5.1	3.6	3.6	2.7	0.7	1.3	3.3	38	
	Day 5	15.8	22.7	<u>18.9</u>	15.9	5.8	4.6	3.3	3.7	2.9	1.6	2.0	2.1	37	
	Day 6	16.3	24.2	<u>17.5</u>	17.7	5.9	4.3	3.6	2.8	2.5	1.4	1.3	2.0	35	
	Day 7	15.2	25.4	<u>20.4</u>	16.1	5.6	4.6	3.0	2.5	1.6	1.3	1.6	2.0	34	
5001-10000	Day 1	15.0	30.1	<u>14.6</u>	12.5	3.8	3.0	5.1	3.8	2.5	2.1	0.4	6.4	41	232
	Day 2	14.2	17.2	<u>15.0</u>	<u>20.6</u>	5.1	8.1	5.6	4.7	2.1	2.1	1.7	3.0	42	
	Day 3	14.2	18.9	<u>26.7</u>	14.2	6.4	5.6	5.1	2.5	2.1	2.5	0.4	3.8	40	
	Day 4	12.5	21.1	<u>18.1</u>	17.2	6.4	3.4	5.6	4.7	3.8	2.5	1.7	2.5	44	
	Day 5	14.2	21.5	<u>18.9</u>	13.7	7.7	3.8	4.3	3.0	4.7	2.1	2.1	3.4	43	
	Day 6	15.0	24.5	<u>18.5</u>	15.5	6.0	5.1	3.4	1.7	3.0	1.7	1.7	3.4	38	
	Day 7	16.3	27.1	<u>17.2</u>	14.2	7.3	3.0	2.5	2.1	1.7	0.8	1.7	5.6	39	
>10000	Day 1	17.7	26.7	<u>16.2</u>	15.0	5.4	3.6	3.3	2.4	2.7	1.8	0.0	5.1	38	333
	Day 2	16.2	25.8	<u>14.1</u>	15.6	6.3	2.7	4.8	2.1	3.3	0.9	0.9	7.2	43	
	Day 3	16.8	21.6	<u>18.3</u>	11.4	6.9	3.3	5.4	2.7	2.7	1.8	1.5	7.5	46	
	Day 4	11.7	20.1	<u>21.9</u>	18.0	4.2	3.9	4.8	2.7	2.1	2.7	1.8	6.0	44	
	Day 5	14.7	23.1	<u>19.8</u>	15.3	4.8	3.9	5.1	4.2	1.5	2.7	1.5	3.3	41	
	Day 6	13.2	25.5	<u>16.5</u>	17.1	3.9	4.5	5.1	4.8	2.7	1.2	2.1	3.3	39	
	Day 7	15.6	27.6	<u>15.0</u>	15.6	6.6	3.0	5.1	2.4	3.0	2.4	1.5	2.1	36	

Sweep type bursts are classified into five general categories: I, II, III, IV, and V. Sometimes radio bursts will not fall into one specific category, but overlap several. As a result, solar radio experts developed three additional categories: continuous, groups of Type III bursts, and groups of Types III and V bursts. In addition to frequency characteristics, sweep type bursts are also categorized by importance, or intensity. There are 3 groups of importance: 1, 2 and 3. A "3" importance sweep burst is more powerful than a "1".

Tables 2-4 through 2-11 summarize mean Ap conditions for 7 days following the eight kinds of sweep bursts. The three classes of importance are on the far left. These tables are similar to those previously explained in Chapter 1.

Tables 2-12 through 2-27 show Ap distributions associated with each type of sweep and importance. The format is the same as previous distribution tables.

Table 2-4 Importance vs Mean Ap For Continuous Type Sweeps

Importance	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	20	19	20	19	18	18	17	40	40	41	40	38	36	34	982
2	22	24	25	24	21	19	17	44	50	50	50	43	39	36	185
3	20	16	24	27	23	25	12	41	33	53	55	61	50	24	24

Table 2-5 Importance vs Mean Ap For Groups of III Type Sweeps

Importance	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	15	15	14	14	15	15	15	31	31	28	29	30	30	30	1135
2	16	17	17	17	18	17	16	33	33	35	34	35	33	32	990
3	18	18	19	19	17	15	16	37	39	39	37	34	30	32	242

Table 2-6 Importance vs Mean Ap For Type I Sweeps

Importance	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	10	15	10	16	11	17	12	19	31	25	33	26	35	23	15
2	32	73	49	31	20	29	53	>99	>99	>99	74	36	52	>99	3
3	63	11	19	24	15	37	32	>99	20	32	52	26	53	48	2

Table 2-7 Importance vs Mean Ap For Type II Sweeps

Importance	(<---- Mean Daily Ap <---->)							(<- Mean Maximum 3-hour ap >)							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	16	17	17	17	17	17	19	31	35	34	32	34	33	35	178
2	19	17	18	21	19	16	17	36	35	36	40	37	31	36	84
3	20	23	26	25	23	18	15	45	46	51	50	46	38	33	52

Table 2-8 Importance vs Mean Ap For Type III Sweeps

Importance	(<---- Mean Daily Ap <---->)							(<- Mean Maximum 3-hour ap >)							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	18	18	17	18	18	17	17	36	35	35	37	37	34	34	2260
2	20	20	20	19	19	19	18	39	41	41	39	39	40	37	998
3	22	23	21	22	22	21	21	44	43	43	45	45	42	40	216

Table 2-9 Importance vs Mean Ap For Groups of III and V Type Sweeps

Importance	(<---- Mean Daily Ap <---->)							(<- Mean Maximum 3-hour ap >)							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	16	16	16	16	16	15	14	32	32	32	32	33	31	28	394
2	20	18	19	23	21	20	18	42	37	39	46	42	40	35	251
3	16	17	26	19	19	19	15	32	35	48	40	43	39	32	41

Table 2-10 Importance vs Mean Ap For Type IV Sweeps

Importance	(<---- Mean Daily Ap <---->)							(<- Mean Maximum 3-hour ap >)							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	17	17	21	20	22	18	18	33	37	44	40	43	36	32	62
2	23	22	29	20	18	19	18	44	47	58	41	35	40	38	58
3	22	27	27	26	20	18	17	45	56	58	51	39	37	37	76

Table 2-11 Importance vs Mean Ap For Type V Sweeps

Importance	(<---- Mean Daily Ap <---->)							(<- Mean Maximum 3-hour ap >)							Event Count
	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	Day	
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	
1	16	16	16	17	18	17	16	32	33	31	34	35	34	33	946
2	18	17	17	16	17	16	16	36	35	34	33	34	32	31	999
3	17	19	18	20	19	18	18	36	38	38	43	40	38	37	432

Table 2-12 Importance vs Daily Ap Distribution For Continuous Type Sweeps

Daily Ap Distribution ----->														
Importance	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
1	Day 1	40.3	<u>28.9</u>	13.0	7.4	3.5	3.4	0.5	0.9	0.3	0.2	1.3	20	982
	Day 2	39.4	<u>31.3</u>	12.8	6.8	3.8	2.4	1.0	0.4	0.3	0.2	1.3	19	
	Day 3	40.0	<u>28.8</u>	13.6	6.3	4.0	2.3	1.2	1.0	0.9	0.0	1.6	20	
	Day 4	39.3	<u>30.8</u>	13.1	6.7	4.2	2.4	1.1	0.5	0.3	0.3	1.0	19	
	Day 5	40.4	<u>30.5</u>	14.0	6.6	4.1	2.2	0.7	0.4	0.0	0.0	0.8	18	
	Day 6	39.6	<u>30.0</u>	15.6	7.2	3.3	1.7	0.9	0.7	0.1	0.2	0.4	18	
	Day 7	42.2	<u>30.7</u>	14.1	5.9	3.7	1.2	0.6	0.3	0.3	0.2	0.5	17	
2	Day 1	35.6	<u>31.8</u>	10.2	8.6	4.8	3.7	1.0	1.6	1.0	0.0	1.0	22	185
	Day 2	36.7	<u>28.6</u>	9.1	8.6	3.7	5.9	2.1	0.5	1.0	1.0	2.1	24	
	Day 3	27.0	<u>33.5</u>	15.6	7.0	5.4	4.3	1.6	1.6	0.5	0.5	2.7	25	
	Day 4	29.7	<u>29.7</u>	11.8	11.8	7.5	4.3	1.0	0.5	0.0	1.0	2.1	24	
	Day 5	32.4	<u>31.3</u>	14.5	7.5	7.0	4.8	0.0	0.5	0.0	0.5	1.0	21	
	Day 6	38.3	<u>29.7</u>	14.0	8.6	3.2	2.7	1.0	0.5	1.0	0.0	0.5	19	
	Day 7	42.7	<u>27.0</u>	15.1	7.0	4.3	1.6	0.5	1.0	0.5	0.0	0.0	17	
3	Day 1	45.8	<u>20.8</u>	16.6	4.1	4.1	0.0	8.3	0.0	0.0	0.0	0.0	20	24
	Day 2	45.8	<u>29.1</u>	12.5	4.1	0.0	4.1	0.0	0.0	4.1	0.0	0.0	16	
	Day 3	33.3	<u>29.1</u>	8.3	12.5	4.1	4.1	0.0	4.1	4.1	0.0	0.0	24	
	Day 4	33.3	<u>41.6</u>	4.1	4.1	4.1	4.1	4.1	0.0	0.0	0.0	4.1	27	
	Day 5	37.5	<u>29.1</u>	16.6	0.0	4.1	0.0	4.1	0.0	0.0	8.3	0.0	23	
	Day 6	<u>50.0</u>	16.6	12.5	0.0	8.3	8.3	0.0	0.0	0.0	0.0	4.1	25	
	Day 7	<u>58.3</u>	29.1	4.1	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	12	

Table 2-13 Importance vs Daily Ap Distribution For Groups of III Type Sweeps

Daily Ap Distribution														
Importance	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
1	Day 1	48.7	30.6	10.7	4.9	1.7	1.2	0.5	0.7	0.0	0.0	0.5	15	1135
	Day 2	49.9	28.4	9.6	6.2	2.5	1.4	0.1	0.6	0.2	0.1	0.4	15	
	Day 3	51.1	30.3	9.9	4.4	1.9	0.8	0.3	0.2	0.0	0.3	0.2	14	
	Day 4	54.6	26.5	9.8	4.2	2.2	0.8	0.4	0.4	0.2	0.0	0.3	14	
	Day 5	52.1	27.3	10.6	4.8	1.9	0.8	0.7	1.1	0.0	0.0	0.1	15	
	Day 6	49.9	29.8	10.0	5.4	2.2	1.3	0.3	0.1	0.0	0.0	0.4	15	
	Day 7	51.3	27.7	10.3	5.4	1.8	1.4	0.5	0.7	0.2	0.0	0.2	15	
2	Day 1	45.3	33.4	9.0	5.5	3.3	1.4	0.2	0.8	0.1	0.0	0.7	16	990
	Day 2	44.2	32.9	9.8	5.2	3.2	1.7	0.8	0.8	0.2	0.3	0.6	17	
	Day 3	43.7	32.6	11.0	5.7	2.6	1.3	0.7	0.4	0.2	0.3	1.3	17	
	Day 4	41.5	33.1	12.3	5.8	3.1	1.9	0.5	1.0	0.2	0.2	0.2	17	
	Day 5	41.9	33.2	10.8	6.3	3.3	1.6	0.8	0.8	0.0	0.1	1.0	18	
	Day 6	43.9	31.4	12.0	6.4	2.4	1.9	0.4	0.5	0.3	0.1	0.5	17	
	Day 7	45.8	31.6	12.2	4.6	1.8	1.1	0.6	0.9	0.2	0.2	0.8	16	
3	Day 1	45.8	28.0	10.3	7.4	3.3	2.4	0.0	1.2	0.0	0.4	0.8	18	242
	Day 2	43.8	31.4	10.3	6.6	2.4	2.8	0.0	1.6	0.0	0.0	0.8	18	
	Day 3	42.1	35.9	7.8	4.9	2.4	1.2	0.8	2.0	0.4	0.4	1.6	19	
	Day 4	40.0	34.7	11.1	6.1	2.8	0.8	0.0	1.2	0.8	0.0	2.0	19	
	Day 5	42.1	33.0	14.4	2.8	2.4	2.4	0.8	0.8	0.8	0.0	0.0	17	
	Day 6	46.2	31.4	13.6	4.9	1.2	1.2	0.0	0.4	0.4	0.0	0.4	15	
	Day 7	46.6	27.2	14.0	6.6	2.0	1.6	0.4	1.2	0.0	0.0	0.0	16	

Table 2-14 Importance vs Daily Ap Distribution For Type I Sweeps

Daily Ap Distribution														
Importance	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
1	Day 1	66.6	26.6	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	15
	Day 2	73.3	13.3	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	6.6	15	
	Day 3	66.6	20.0	6.6	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	10	
	Day 4	66.6	13.3	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	16	
	Day 5	66.6	20.0	6.6	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	11	
	Day 6	66.6	6.6	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	17	
	Day 7	60.0	26.6	6.6	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	12	
2	Day 1	33.3	33.3	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	32	3
	Day 2	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	73	
	Day 3	0.0	33.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	49	
	Day 4	0.0	33.3	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	31	
	Day 5	33.3	0.0	66.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	
	Day 6	0.0	33.3	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	29	
	Day 7	0.0	0.0	66.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	53	
3	Day 1	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	63	2
	Day 2	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	
	Day 3	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	
	Day 4	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	24	
	Day 5	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	
	Day 6	0.0	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	37	
	Day 7	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	

Table 2-15 Importance vs Daily Ap Distribution For Type II Sweeps

<----- Daily Ap Distribution ----->														
Importance	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
1	Day 1	46.0	<u>32.0</u>	11.7	3.3	2.8	2.2	0.5	0.0	0.0	0.5	0.5	16	178
	Day 2	44.9	<u>33.7</u>	9.5	4.4	2.8	2.2	0.5	0.5	0.0	0.0	1.1	17	
	Day 3	43.8	<u>32.0</u>	11.7	7.8	1.1	1.1	0.0	1.1	0.0	0.0	1.1	17	
	Day 4	38.2	<u>36.5</u>	12.9	6.7	1.1	1.6	1.1	1.6	0.0	0.0	0.0	17	
	Day 5	42.6	<u>33.1</u>	14.0	5.6	1.6	1.1	0.5	0.0	0.0	0.0	1.1	17	
	Day 6	42.6	<u>34.2</u>	8.9	7.8	2.8	1.1	0.0	0.5	0.5	0.0	1.1	17	
	Day 7	49.4	<u>25.8</u>	10.6	6.7	1.6	0.0	1.6	0.5	0.5	0.5	2.2	19	
2	Day 1	39.2	<u>29.7</u>	15.4	7.1	4.7	0.0	0.0	1.1	2.3	0.0	0.0	19	84
	Day 2	38.0	<u>35.7</u>	10.7	7.1	7.1	1.1	0.0	0.0	0.0	0.0	0.0	17	
	Day 3	40.4	<u>28.5</u>	15.4	3.5	9.5	0.0	1.1	0.0	1.1	0.0	0.0	18	
	Day 4	32.1	<u>29.7</u>	14.2	10.7	9.5	3.5	0.0	0.0	0.0	0.0	0.0	21	
	Day 5	41.6	<u>27.3</u>	13.0	9.5	3.5	0.0	1.1	0.0	1.1	1.1	1.1	19	
	Day 6	38.0	<u>39.2</u>	13.0	3.5	3.5	1.1	1.1	0.0	0.0	0.0	0.0	16	
	Day 7	46.4	<u>32.1</u>	9.5	2.3	4.7	0.0	1.1	2.3	0.0	0.0	1.1	17	
3	Day 1	<u>50.0</u>	21.1	5.7	7.6	5.7	3.8	1.9	0.0	1.9	0.0	1.9	20	52
	Day 2	36.5	<u>32.6</u>	7.6	9.6	0.0	3.8	1.9	3.8	0.0	0.0	3.8	23	
	Day 3	42.3	<u>30.7</u>	9.6	5.7	0.0	1.9	0.0	1.9	0.0	0.0	7.6	26	
	Day 4	28.8	<u>30.7</u>	11.5	9.6	9.6	3.8	0.0	3.8	0.0	0.0	1.9	25	
	Day 5	30.7	<u>38.4</u>	5.7	1.9	11.5	3.8	5.7	0.0	0.0	0.0	1.9	23	
	Day 6	44.2	<u>34.6</u>	9.6	3.8	1.9	0.0	1.9	0.0	0.0	1.9	1.9	18	
	Day 7	50.0	<u>25.0</u>	17.3	1.9	0.0	3.8	0.0	1.9	0.0	0.0	0.0	15	

Table 2-16 Importance vs Daily Ap Distribution For Type III Sweeps

		(<----- Daily Ap Distribution ----->)													
Importance	Days After	Percent Frequency of Occurrence												Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100			
1	Day 1	41.8	<u>31.1</u>	13.3	6.2	3.1	1.5	0.8	0.5	0.5	0.1	0.5	18	2260	
	Day 2	41.7	<u>31.3</u>	12.4	6.4	3.2	1.9	0.8	0.7	0.2	0.2	0.6	18		
	Day 3	41.2	<u>31.9</u>	12.9	6.8	3.2	1.5	0.4	0.4	0.2	0.3	0.6	17		
	Day 4	41.0	<u>31.3</u>	13.5	5.8	3.3	1.5	1.1	0.7	0.2	0.2	0.8	18		
	Day 5	40.8	<u>32.3</u>	12.1	6.5	2.7	1.7	1.2	0.6	0.3	0.2	1.1	18		
	Day 6	42.1	<u>31.9</u>	13.0	6.5	2.4	1.5	0.5	0.8	0.1	0.1	0.5	17		
	Day 7	42.5	<u>31.8</u>	13.3	5.3	2.7	1.6	0.7	0.9	0.3	0.1	0.3	17		
2	Day 1	36.4	<u>32.0</u>	13.4	6.8	5.2	3.2	0.9	0.6	0.3	0.3	0.7	20	998	
	Day 2	36.0	<u>30.8</u>	14.9	7.3	4.6	2.4	1.1	0.6	0.7	0.4	1.0	20		
	Day 3	36.7	<u>33.4</u>	11.6	6.7	4.9	1.9	1.9	0.8	0.6	0.1	1.2	20		
	Day 4	36.2	<u>34.3</u>	12.0	7.7	4.5	2.2	1.1	0.3	0.5	0.3	0.7	19		
	Day 5	37.8	<u>31.3</u>	14.5	7.3	3.6	2.1	0.8	0.7	0.7	0.3	0.7	19		
	Day 6	39.0	<u>28.9</u>	14.7	7.3	5.1	2.2	0.7	0.5	0.2	0.5	0.7	19		
	Day 7	40.1	<u>31.3</u>	12.8	6.5	4.1	2.4	1.2	0.5	0.2	0.2	0.5	18		
3	Day 1	30.0	<u>33.7</u>	12.5	8.3	6.9	2.3	2.7	1.3	1.3	0.4	0.0	22	216	
	Day 2	29.1	<u>36.1</u>	12.0	8.7	5.0	4.1	0.9	0.4	0.4	0.4	2.3	23		
	Day 3	32.8	<u>28.7</u>	14.3	9.2	7.4	4.6	0.4	1.3	0.4	0.0	0.4	21		
	Day 4	31.0	<u>29.6</u>	12.5	11.1	8.3	4.6	0.4	0.9	0.4	0.0	0.9	22		
	Day 5	33.3	<u>28.2</u>	11.5	10.6	8.7	4.6	1.8	0.0	0.0	0.0	0.9	22		
	Day 6	35.1	<u>26.3</u>	15.7	9.2	5.0	6.0	0.4	0.4	0.9	0.0	0.4	21		
	Day 7	33.3	<u>28.2</u>	15.7	12.0	6.0	1.3	1.3	0.4	0.4	0.4	0.4	21		

Table 2-17 Importance vs Daily Ap Distribution For Groups of III & V Type Sweeps

		----- Daily Ap Distribution -----)												
Importance	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
1	Day 1	44.4	29.4	13.7	7.3	2.7	0.7	0.5	0.2	0.2	0.5	0.0	16	394
	Day 2	45.9	29.9	12.9	6.5	2.2	0.7	0.7	0.2	0.0	0.0	0.5	16	
	Day 3	45.6	33.7	9.8	5.5	1.2	2.2	0.5	0.5	0.0	0.0	0.5	16	
	Day 4	44.9	33.7	8.8	6.0	3.2	1.2	0.5	0.2	0.2	0.0	0.7	16	
	Day 5	47.7	30.2	12.4	3.2	2.0	1.0	0.5	1.5	0.2	0.2	0.7	16	
	Day 6	50.2	28.6	11.4	5.5	2.0	0.7	0.2	0.2	0.0	0.2	0.5	15	
	Day 7	51.7	28.6	11.4	3.5	2.5	0.7	0.5	0.5	0.0	0.0	0.2	14	
2	Day 1	38.6	25.8	15.1	8.7	6.3	2.3	0.3	1.1	0.3	0.3	0.3	20	251
	Day 2	44.6	29.8	9.5	7.1	3.9	2.3	1.1	0.3	0.0	0.3	0.3	18	
	Day 3	38.6	34.2	9.1	7.9	4.7	2.3	0.7	0.7	0.0	0.3	0.7	19	
	Day 4	34.6	30.6	13.9	9.5	4.3	2.7	0.7	0.7	0.0	0.3	1.9	23	
	Day 5	31.4	36.6	13.1	9.1	4.7	1.9	0.7	0.7	0.0	0.0	1.1	21	
	Day 6	35.0	30.2	15.9	7.1	5.1	3.5	1.1	0.0	0.0	0.3	1.1	20	
	Day 7	39.4	28.6	17.9	6.3	3.9	1.5	0.7	0.0	0.3	0.3	0.3	18	
3	Day 1	48.7	29.2	4.8	12.1	0.0	2.4	2.4	0.0	0.0	0.0	0.0	16	41
	Day 2	39.0	31.7	12.1	12.1	0.0	2.4	0.0	2.4	0.0	0.0	0.0	17	
	Day 3	31.7	31.7	12.1	12.1	4.8	0.0	0.0	4.8	0.0	0.0	2.4	26	
	Day 4	34.1	34.1	12.1	4.8	4.8	7.3	2.4	0.0	0.0	0.0	0.0	19	
	Day 5	34.1	36.5	7.3	7.3	7.3	4.8	0.0	2.4	0.0	0.0	0.0	19	
	Day 6	43.9	12.1	26.8	9.7	4.8	2.4	0.0	0.0	0.0	0.0	0.0	19	
	Day 7	51.2	19.5	21.9	2.4	0.0	0.0	2.4	2.4	0.0	0.0	0.0	15	

Table 2-18 Importance vs Daily Ap Distribution For Type IV Sweeps

Importance	Days After	(<----- Daily Ap Distribution ----->)											Mean Ap	Event Count
		Percent Frequency of Occurrence												
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
1	Day 1	40.3	<u>30.6</u>	16.1	6.4	4.8	1.6	0.0	0.0	0.0	0.0	0.0	17	62
	Day 2	43.5	<u>32.2</u>	11.2	3.2	3.2	1.6	1.6	3.2	0.0	0.0	0.0	17	
	Day 3	33.8	<u>30.6</u>	24.1	4.8	0.0	1.6	0.0	3.2	0.0	0.0	1.6	21	
	Day 4	27.4	<u>40.3</u>	17.7	3.2	4.8	1.6	1.6	3.2	0.0	0.0	0.0	20	
	Day 5	37.0	<u>32.2</u>	16.1	3.2	6.4	1.6	0.0	0.0	0.0	0.0	3.2	22	
	Day 6	40.3	<u>37.0</u>	8.0	6.4	3.2	0.0	0.0	1.6	1.6	1.6	0.0	18	
	Day 7	<u>53.2</u>	22.5	9.6	6.4	3.2	0.0	1.6	1.6	0.0	0.0	1.6	18	
2	Day 1	31.0	<u>37.9</u>	8.6	8.6	3.4	0.0	3.4	1.7	1.7	1.7	1.7	23	58
	Day 2	37.9	<u>25.8</u>	15.5	8.6	3.4	3.4	1.7	0.0	1.7	0.0	1.7	22	
	Day 3	18.9	<u>39.6</u>	13.7	5.1	8.6	5.1	1.7	0.0	1.7	1.7	3.4	29	
	Day 4	24.1	<u>37.9</u>	18.9	5.1	12.0	1.7	0.0	0.0	0.0	0.0	0.0	20	
	Day 5	36.2	<u>36.2</u>	8.6	6.8	10.3	0.0	1.7	0.0	0.0	0.0	0.0	18	
	Day 6	48.2	<u>20.6</u>	13.7	5.1	6.8	1.7	0.0	1.7	0.0	0.0	1.7	19	
	Day 7	43.1	<u>31.0</u>	12.0	5.1	1.7	1.7	1.7	1.7	0.0	0.0	1.7	18	
3	Day 1	42.1	<u>22.3</u>	15.7	5.2	5.2	3.9	0.0	1.3	0.0	0.0	3.9	22	76
	Day 2	32.8	<u>32.8</u>	9.2	7.8	3.9	1.3	1.3	2.6	1.3	1.3	5.2	27	
	Day 3	31.5	<u>31.5</u>	10.5	3.9	3.9	5.2	1.3	3.9	3.9	0.0	3.9	27	
	Day 4	34.2	<u>27.6</u>	7.8	10.5	9.2	3.9	0.0	1.3	0.0	0.0	5.2	26	
	Day 5	36.8	<u>31.5</u>	10.5	9.2	6.5	1.3	1.3	0.0	0.0	0.0	2.6	20	
	Day 6	42.1	<u>36.8</u>	3.9	5.2	6.5	0.0	2.6	0.0	1.3	0.0	1.3	18	
	Day 7	44.7	<u>27.6</u>	13.1	7.8	2.6	2.6	0.0	1.3	0.0	0.0	0.0	17	

Table 2-19 Importance vs Daily Ap Distribution For Type V Sweeps

Importance	Days After	Daily Ap Distribution												Mean Ap	Event Count
		Percent Frequency of Occurrence													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100			
1	Day 1	46.7	<u>30.4</u>	10.7	4.9	2.8	1.7	0.8	0.9	0.2	0.1	0.3	16	946	
	Day 2	45.4	<u>28.3</u>	14.0	5.9	2.9	1.3	0.5	0.7	0.1	0.1	0.4	16		
	Day 3	45.6	<u>29.7</u>	12.6	6.0	3.1	0.7	0.7	0.8	0.2	0.0	0.2	16		
	Day 4	42.7	<u>31.9</u>	12.3	6.7	2.8	0.9	1.0	0.3	0.2	0.3	0.5	17		
	Day 5	44.6	<u>29.7</u>	12.0	5.9	2.9	1.5	0.8	0.9	0.4	0.0	0.9	18		
	Day 6	44.7	<u>29.1</u>	12.6	6.6	2.8	1.4	0.8	0.5	0.1	0.1	0.8	17		
	Day 7	46.0	<u>31.0</u>	10.8	4.9	2.8	1.7	0.7	0.6	0.3	0.2	0.4	16		
2	Day 1	42.9	<u>30.1</u>	12.1	7.2	3.8	1.2	0.9	0.3	0.6	0.1	0.7	18	999	
	Day 2	43.6	<u>30.5</u>	12.1	6.5	3.1	1.4	1.1	0.7	0.1	0.2	0.6	17		
	Day 3	43.7	<u>32.1</u>	12.7	5.3	2.9	0.9	0.6	0.2	0.5	0.1	0.9	17		
	Day 4	45.8	<u>30.2</u>	12.1	4.7	3.0	1.9	0.7	0.8	0.2	0.1	0.4	16		
	Day 5	42.0	<u>34.8</u>	11.4	5.7	2.5	1.2	0.3	0.9	0.3	0.1	0.7	17		
	Day 6	46.5	<u>32.0</u>	11.2	4.3	2.8	1.2	0.5	0.5	0.2	0.2	0.5	16		
	Day 7	46.2	<u>32.2</u>	11.5	4.2	2.0	1.4	0.9	0.6	0.1	0.3	0.5	16		
3	Day 1	41.2	<u>33.7</u>	10.1	6.9	3.2	2.3	0.4	0.9	0.2	0.4	0.2	17	432	
	Day 2	46.0	<u>28.2</u>	9.4	6.7	4.3	0.9	0.2	1.8	0.4	0.4	1.1	19		
	Day 3	43.7	<u>31.7</u>	9.7	6.2	3.2	2.0	1.1	0.6	0.2	0.2	0.9	18		
	Day 4	42.8	<u>28.7</u>	10.4	5.7	5.3	2.3	0.9	0.9	0.6	0.2	1.8	20		
	Day 5	44.2	<u>27.5</u>	11.1	6.9	3.9	2.3	1.6	0.6	0.2	0.2	1.1	19		
	Day 6	42.8	<u>27.3</u>	12.7	7.1	3.9	3.0	1.6	0.6	0.4	0.0	0.2	18		
	Day 7	45.1	<u>28.7</u>	12.5	5.3	2.7	2.3	0.6	1.3	0.2	0.0	0.9	18		

Table 2-20 Importance vs Maximum 3-Hour ap Distribution For Continuous Type Sweeps

Importance	Days After	(----- Maximum 3-hour ap Distribution -----)												Mean ap	Event Count
		Percent Frequency of Occurrence													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-81	81-110	111-130	131-150	>150		
1	Day 1	14.1	26.3	<u>16.4</u>	14.7	5.1	4.9	4.8	3.7	2.7	2.2	1.0	3.3	40	982
	Day 2	14.3	26.7	<u>16.8</u>	14.6	4.8	4.8	4.2	3.8	2.8	1.6	1.6	3.3	40	
	Day 3	16.4	23.6	<u>16.1</u>	14.4	5.0	4.9	4.3	4.2	2.6	1.5	1.6	4.6	41	
	Day 4	14.9	26.0	<u>15.6</u>	14.4	5.7	5.2	3.4	4.6	3.1	1.5	1.3	3.6	40	
	Day 5	11.5	28.4	<u>16.2</u>	17.3	5.4	4.8	4.8	3.0	2.5	1.6	1.1	2.8	38	
	Day 6	14.2	26.5	<u>17.0</u>	15.8	5.9	4.8	4.6	3.2	1.7	1.6	2.0	2.1	36	
	Day 7	15.1	25.8	<u>18.1</u>	16.5	5.6	5.1	3.9	3.1	2.1	0.6	1.5	2.0	34	
2	Day 1	14.5	25.9	<u>16.2</u>	11.3	5.9	5.4	4.3	5.9	1.6	0.5	1.6	6.4	44	185
	Day 2	12.4	24.3	<u>15.1</u>	12.4	5.9	2.1	5.4	5.4	2.1	5.4	2.7	6.4	50	
	Day 3	5.4	20.0	<u>19.4</u>	<u>21.0</u>	7.5	3.2	3.2	5.9	3.2	3.7	0.5	6.4	50	
	Day 4	8.6	20.0	17.2	<u>14.5</u>	5.9	6.4	4.8	6.4	3.7	3.7	2.1	5.9	50	
	Day 5	9.1	21.0	<u>23.7</u>	9.1	7.5	7.0	7.0	4.8	2.7	3.2	0.0	4.3	43	
	Day 6	9.7	29.7	<u>16.7</u>	16.2	4.3	5.4	2.1	7.0	2.7	0.5	0.5	4.8	39	
	Day 7	15.6	28.1	<u>12.9</u>	14.5	5.4	7.5	3.2	3.7	4.8	1.6	0.5	1.6	36	
3	Day 1	25.0	20.8	<u>8.3</u>	12.5	4.1	4.1	0.0	8.3	8.3	0.0	4.1	4.1	41	24
	Day 2	33.3	16.6	<u>12.5</u>	16.6	8.3	0.0	0.0	4.1	4.1	0.0	0.0	4.1	33	
	Day 3	12.5	12.5	20.8	<u>20.8</u>	0.0	8.3	4.1	0.0	4.1	4.1	0.0	12.5	53	
	Day 4	0.3	25.0	0.0	<u>37.5</u>	4.1	4.1	2.1	0.0	8.3	4.1	0.0	4.1	55	
	Day 5	29.1	8.3	12.5	<u>12.5</u>	0.0	8.3	4.1	8.3	4.1	0.0	0.0	12.5	61	
	Day 6	20.8	29.1	<u>8.3</u>	12.5	0.0	8.3	4.1	0.0	4.1	4.1	4.1	4.1	50	
	Day 7	29.1	<u>33.3</u>	20.8	4.1	0.0	0.0	0.0	8.3	4.1	0.0	0.0	0.0	24	

Table 2-21 Importance vs Maximum 3-Hour ap Distribution For Group III Type Sweeps

Importance	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
1	Day 1	20.4	28.1	<u>17.5</u>	15.2	4.3	4.0	2.7	1.7	1.6	0.9	1.3	1.7	31	1135
	Day 2	20.5	28.8	<u>16.2</u>	14.6	2.9	4.2	4.4	2.6	1.7	0.8	0.7	2.1	31	
	Day 3	21.9	<u>29.6</u>	<u>19.7</u>	12.1	4.4	2.9	3.1	1.7	0.9	1.3	0.7	1.2	28	
	Day 4	22.4	<u>31.8</u>	15.9	13.4	3.9	2.3	2.3	2.2	1.8	0.9	0.9	1.4	29	
	Day 5	19.2	<u>31.6</u>	17.0	13.9	3.8	3.2	3.2	2.1	1.9	0.6	1.2	1.8	30	
	Day 6	21.6	27.8	<u>16.8</u>	14.8	5.4	2.9	3.5	2.4	2.1	0.6	0.5	1.2	30	
	Day 7	21.0	<u>29.4</u>	<u>17.4</u>	13.3	4.2	3.7	2.8	2.1	1.4	0.9	1.5	1.6	30	
2	Day 1	15.7	29.6	<u>19.6</u>	14.3	4.1	4.2	2.9	2.6	2.0	1.1	1.6	1.8	33	990
	Day 2	17.2	27.0	<u>19.5</u>	15.3	3.2	4.7	2.9	3.0	1.8	1.1	1.5	2.3	33	
	Day 3	16.4	26.4	<u>18.3</u>	17.6	5.1	3.3	3.6	2.1	1.7	1.2	1.1	2.7	35	
	Day 4	15.6	26.9	<u>17.2</u>	16.8	6.0	4.7	3.0	2.4	2.0	1.3	2.1	1.5	34	
	Day 5	16.0	24.7	<u>19.4</u>	16.9	5.8	3.7	3.4	2.4	2.3	1.3	1.7	1.9	35	
	Day 6	16.9	28.2	<u>16.2</u>	17.3	4.5	4.8	2.1	3.0	1.9	1.5	1.8	1.3	33	
	Day 7	18.7	26.9	<u>19.4</u>	15.4	5.0	3.7	2.9	2.1	1.3	1.2	0.7	2.2	32	
3	Day 1	14.8	29.3	<u>13.6</u>	16.1	6.1	4.1	3.3	4.5	2.0	2.0	0.8	2.8	37	242
	Day 2	14.4	27.6	<u>17.7</u>	13.2	6.6	3.7	4.1	2.0	2.8	2.8	1.6	2.8	39	
	Day 3	16.9	24.3	<u>18.1</u>	17.3	7.0	3.7	0.8	2.4	1.6	0.4	1.6	5.3	39	
	Day 4	13.2	22.3	<u>22.7</u>	18.5	7.0	3.3	4.1	2.0	2.0	0.0	0.4	4.1	37	
	Day 5	14.0	27.6	<u>16.9</u>	20.6	6.1	2.4	2.4	1.2	2.4	1.6	3.3	0.8	34	
	Day 6	19.8	28.9	<u>15.2</u>	17.7	4.9	3.3	3.3	2.4	0.8	0.8	1.2	1.2	30	
	Day 7	19.8	25.2	<u>17.7</u>	13.6	8.6	2.8	3.7	3.7	0.8	0.8	1.2	1.6	32	

Table 2-22 Importance vs Maximum 3-Hour ap Distribution For Type I Sweeps

Importance	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		Percent Frequency of Occurrence													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
1	Day 1	40.0	<u>20.0</u>	20.0	6.6	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	15
	Day 2	46.6	<u>13.3</u>	13.3	13.3	0.0	6.6	0.0	0.0	0.0	0.0	0.0	6.6	31	
	Day 3	<u>53.3</u>	6.6	13.3	6.6	6.6	0.0	0.0	6.6	6.6	0.0	0.0	0.0	25	
	Day 4	46.6	<u>13.3</u>	13.3	13.3	0.0	6.6	0.0	0.0	0.0	0.0	0.0	6.6	33	
	Day 5	<u>53.3</u>	6.6	6.6	20.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	26	
	Day 6	46.6	<u>13.3</u>	6.6	13.3	6.6	6.6	0.0	0.0	0.0	0.0	0.0	6.6	35	
	Day 7	46.6	<u>6.6</u>	13.3	26.6	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.0	23	
2	Day 1	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	<u>33.3</u>	0.0	0.0	33.3	104	3
	Day 2	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<u>66.6</u>	155	
	Day 3	0.0	0.0	0.0	33.3	<u>33.3</u>	0.0	0.0	0.0	0.0	0.0	0.0	33.3	108	
	Day 4	0.0	0.0	0.0	0.0	33.3	0.0	0.0	<u>33.3</u>	33.3	0.0	0.0	0.0	74	
	Day 5	0.0	33.3	0.0	<u>33.3</u>	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	36	
	Day 6	0.0	0.0	33.3	<u>33.3</u>	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	52	
	Day 7	0.0	0.0	0.0	<u>66.6</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	105	
3	Day 1	0.0	<u>50.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	126	2
	Day 2	0.0	<u>50.0</u>	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	
	Day 3	<u>50.0</u>	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	32	
	Day 4	<u>50.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	52	
	Day 5	0.0	<u>50.0</u>	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	
	Day 6	0.0	0.0	0.0	<u>50.0</u>	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	53	
	Day 7	0.0	0.0	0.0	0.0	<u>100.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48	

Table 2-23 Importance vs Maximum 3-Hour ap Distribution For Type II Sweeps

Importance	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
1	Day 1	20.2	29.7	<u>16.8</u>	12.9	6.1	3.3	2.2	1.6	1.6	2.2	1.1	1.6	31	178
	Day 2	18.5	29.2	<u>19.6</u>	10.6	5.0	1.1	4.4	3.9	2.2	1.1	1.1	2.8	35	
	Day 3	20.2	23.5	<u>17.4</u>	16.2	2.8	4.4	3.9	4.4	3.3	0.5	0.0	2.8	34	
	Day 4	13.4	28.0	<u>20.7</u>	15.1	6.1	5.6	2.8	2.2	1.6	1.1	1.1	1.6	32	
	Day 5	17.9	24.1	<u>22.4</u>	15.7	5.6	5.0	2.8	1.1	0.5	1.1	2.2	1.1	34	
	Day 6	17.4	27.5	<u>21.3</u>	12.9	4.4	2.2	3.3	2.8	3.9	1.1	1.1	1.6	33	
	Day 7	17.9	29.7	<u>19.6</u>	10.6	6.1	2.8	1.1	2.2	4.4	0.0	1.6	3.3	35	
2	Day 1	9.5	32.1	<u>14.2</u>	13.0	10.7	4.7	7.1	3.5	1.1	0.0	0.0	3.5	36	84
	Day 2	11.9	32.1	<u>14.2</u>	16.6	3.5	5.9	1.1	8.3	2.3	1.1	1.1	1.1	35	
	Day 3	15.4	23.8	<u>17.8</u>	16.6	4.7	8.3	3.5	3.5	0.0	2.3	0.0	3.5	36	
	Day 4	14.2	21.4	10.7	<u>17.8</u>	8.3	5.9	5.9	5.9	7.1	0.0	1.1	1.1	40	
	Day 5	15.4	26.1	<u>19.0</u>	10.7	5.9	4.7	7.1	2.3	2.3	1.1	0.0	4.7	37	
	Day 6	20.2	16.6	<u>26.1</u>	17.8	3.5	1.1	5.9	4.7	2.3	1.1	0.0	0.0	31	
	Day 7	20.2	23.8	<u>20.2</u>	16.6	5.9	2.3	0.0	2.3	1.1	2.3	0.0	4.7	36	
3	Day 1	21.1	25.0	<u>15.3</u>	5.7	7.6	1.9	5.7	3.8	1.9	1.9	0.0	9.6	45	52
	Day 2	13.4	28.8	<u>9.6</u>	17.3	3.8	1.9	1.9	7.6	1.9	3.8	1.9	7.6	46	
	Day 3	13.4	21.1	<u>17.3</u>	23.0	1.9	1.9	3.8	1.9	3.8	1.9	0.0	9.6	51	
	Day 4	17.3	9.6	21.1	<u>11.5</u>	7.6	3.8	3.8	9.6	3.8	3.8	0.0	7.6	50	
	Day 5	1.9	25.0	23.0	<u>19.2</u>	3.8	3.8	3.8	3.8	1.9	5.7	1.9	5.7	46	
	Day 6	21.1	17.3	<u>15.3</u>	23.0	3.8	3.8	3.8	3.8	0.0	1.9	0.0	5.7	38	
	Day 7	17.3	21.1	<u>26.9</u>	11.5	7.6	7.6	0.0	0.0	3.8	0.0	1.9	1.9	33	

Table 2-24 Importance vs Maximum 3-Hour ap Distribution For Type III Sweeps

Maximum 3-hour ap Distribution															
Importance	Days After	Percent Frequency of Occurrence												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
1	Day 1	14.4	27.0	<u>18.0</u>	15.4	4.9	5.7	3.5	3.0	1.9	1.6	1.3	2.4	36	2260
	Day 2	16.8	25.0	<u>17.3</u>	16.4	4.6	5.1	3.0	4.0	2.4	1.4	0.7	2.6	35	
	Day 3	15.8	25.9	<u>18.7</u>	14.4	5.7	5.3	3.6	2.9	2.6	1.6	0.8	2.1	35	
	Day 4	15.2	25.7	<u>18.4</u>	16.4	4.9	4.7	3.7	3.1	1.8	1.4	1.0	3.2	37	
	Day 5	15.8	25.1	<u>18.7</u>	16.0	4.8	4.4	3.4	3.4	1.9	1.7	1.0	3.2	37	
	Day 6	16.9	25.7	<u>18.6</u>	15.7	5.0	5.6	2.9	3.5	1.3	1.1	0.7	2.3	34	
	Day 7	16.6	26.9	<u>17.2</u>	16.0	5.7	4.2	3.1	3.8	1.7	0.8	1.2	2.1	34	
2	Day 1	13.4	22.8	<u>18.6</u>	16.9	5.9	4.7	3.9	4.1	3.4	1.7	0.7	3.7	39	998
	Day 2	12.9	23.8	<u>17.6</u>	16.6	5.0	5.9	5.1	3.2	3.0	1.7	0.8	4.2	41	
	Day 3	12.3	24.4	<u>18.3</u>	16.9	4.6	5.6	4.8	4.6	2.2	0.7	0.8	4.6	41	
	Day 4	12.6	22.7	<u>20.1</u>	17.4	4.0	5.3	4.9	4.5	3.0	1.3	1.2	2.8	39	
	Day 5	12.2	23.8	<u>18.9</u>	17.2	5.4	6.3	4.0	3.9	2.6	1.3	1.0	3.2	39	
	Day 6	13.7	25.5	<u>17.4</u>	14.2	5.5	6.2	3.6	4.2	3.4	1.4	1.3	3.4	40	
	Day 7	14.5	25.0	<u>20.1</u>	14.4	6.2	3.9	3.1	4.7	2.9	1.7	0.5	2.8	37	
3	Day 1	12.0	21.7	14.8	<u>19.9</u>	3.7	5.5	6.4	3.7	4.1	0.9	1.3	5.5	44	216
	Day 2	10.6	20.3	18.0	<u>17.5</u>	4.1	11.1	3.2	3.2	5.5	0.4	1.8	3.7	43	
	Day 3	14.3	17.5	<u>20.8</u>	12.9	4.1	6.9	5.5	6.4	4.1	2.3	1.8	2.7	43	
	Day 4	11.5	16.2	17.1	<u>15.2</u>	7.8	9.7	5.5	7.8	3.7	0.4	0.9	3.7	45	
	Day 5	11.1	21.2	<u>19.9</u>	10.6	3.7	7.8	6.4	6.9	4.6	2.3	0.0	5.0	45	
	Day 6	13.4	19.4	<u>16.6</u>	<u>17.1</u>	7.4	3.7	6.0	4.1	4.6	0.4	3.2	3.7	42	
	Day 7	11.5	22.2	<u>16.6</u>	17.5	6.0	7.8	5.0	4.1	4.1	0.0	0.4	4.1	40	

Table 2-25 Importance vs Maximum 3-Hour ap Distribution
For Group III & V Type Sweeps

		Maximum 3-hour ap Distribution														
Importance	Days After	Percent Frequency of Occurrence													Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150			
1	Day 1	19.0	26.9	<u>17.0</u>	14.2	6.8	5.3	3.5	2.5	0.7	1.0	0.5	2.2	32	394	
	Day 2	22.0	26.9	<u>16.2</u>	13.7	4.8	3.0	3.5	3.0	2.2	1.0	1.2	2.0	32		
	Day 3	<u>18.2</u>	26.6	<u>22.3</u>	14.2	3.5	3.5	2.7	3.2	1.0	1.7	1.0	1.5	32		
	Day 4	18.7	26.6	<u>19.7</u>	16.2	4.3	2.5	4.0	2.2	1.2	1.5	0.5	2.0	32		
	Day 5	18.5	30.7	<u>19.5</u>	13.4	4.8	2.2	3.0	1.5	1.7	1.0	0.2	3.0	33		
	Day 6	19.5	29.9	<u>19.0</u>	13.4	4.5	4.8	2.2	1.5	1.0	1.0	1.0	1.7	31		
	Day 7	23.0	<u>28.6</u>	18.0	14.4	4.5	3.2	1.5	2.0	1.5	0.7	0.7	1.2	28		
2	Day 1	15.9	22.3	<u>13.5</u>	14.3	7.1	6.3	4.7	4.3	2.7	3.1	1.9	3.1	42	251	
	Day 2	16.3	26.6	<u>19.5</u>	10.7	5.9	2.7	5.9	2.3	3.1	2.7	2.3	1.1	37		
	Day 3	<u>14.7</u>	24.7	<u>19.1</u>	16.3	4.7	5.1	4.3	1.9	1.5	4.3	0.3	2.3	39		
	Day 4	10.3	22.3	<u>17.9</u>	14.3	10.3	5.5	6.3	4.3	1.1	1.1	0.7	5.1	46		
	Day 5	12.7	18.3	17.5	<u>22.3</u>	9.5	3.9	1.9	3.9	1.5	3.5	1.9	2.3	42		
	Day 6	15.5	22.3	<u>18.3</u>	13.1	5.9	6.3	3.1	4.3	2.7	3.1	1.9	2.7	40		
	Day 7	15.5	27.4	<u>15.9</u>	14.7	7.5	4.3	4.7	1.9	1.5	2.7	1.9	1.1	35		
3	Day 1	21.9	24.3	<u>12.1</u>	21.9	2.4	7.3	0.0	2.4	0.0	4.8	0.0	2.4	32	41	
	Day 2	19.5	24.3	4.8	<u>24.3</u>	9.7	4.8	4.8	2.4	0.0	2.4	0.0	2.4	35		
	Day 3	17.0	17.0	<u>17.0</u>	14.6	7.3	7.3	7.3	2.4	0.0	2.4	0.0	7.3	48		
	Day 4	12.1	24.3	<u>21.9</u>	14.6	4.8	4.8	0.0	7.3	0.0	2.4	4.8	2.4	40		
	Day 5	21.9	7.3	19.5	<u>24.3</u>	2.4	0.0	4.8	4.8	2.4	7.3	2.4	2.4	43		
	Day 6	21.9	19.5	<u>9.7</u>	12.1	14.6	4.8	0.0	7.3	0.0	2.4	7.3	0.0	39		
	Day 7	26.8	<u>24.3</u>	17.0	7.3	9.7	4.8	4.8	0.0	0.0	0.0	0.0	4.8	32		

Table 2-26 Importance vs Maximum 3-Hour ap Distribution For Type IV Sweeps

Importance	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-81	81-110	111-130	131-150	>150		
1	Day 1	11.2	37.0	<u>12.9</u>	6.4	12.9	3.2	6.4	6.4	3.2	0.0	0.0	0.0	33	62
	Day 2	16.1	32.2	<u>14.5</u>	14.5	4.8	4.8	1.6	3.2	0.0	0.0	3.2	4.8	37	
	Day 3	9.6	20.9	<u>16.1</u>	<u>20.9</u>	6.4	9.6	4.8	3.2	1.6	0.0	1.6	4.8	44	
	Day 4	4.8	25.8	19.3	<u>17.7</u>	6.4	8.0	4.8	3.2	3.2	3.2	0.0	3.2	40	
	Day 5	11.2	22.5	<u>22.5</u>	<u>17.7</u>	3.2	3.2	8.0	4.8	0.0	1.6	1.6	3.2	43	
	Day 6	9.6	32.2	<u>27.4</u>	8.0	4.8	1.6	6.4	1.6	0.0	1.6	3.2	3.2	36	
	Day 7	20.9	29.0	<u>14.5</u>	9.6	11.2	6.4	0.0	0.0	4.8	0.0	1.6	1.6	32	
2	Day 1	17.2	22.4	<u>13.7</u>	13.7	5.1	5.1	6.8	3.4	1.7	0.0	3.4	6.8	44	58
	Day 2	6.8	32.7	8.6	<u>17.2</u>	5.1	5.1	1.7	6.8	1.7	3.4	3.4	6.8	47	
	Day 3	10.3	8.6	20.6	<u>18.9</u>	6.8	3.4	12.0	5.1	1.7	0.0	1.7	10.3	58	
	Day 4	6.8	15.5	12.0	<u>31.0</u>	6.8	6.8	5.1	6.8	5.1	3.4	0.0	0.0	41	
	Day 5	8.6	25.8	<u>24.1</u>	17.2	3.4	3.4	6.8	5.1	1.7	0.0	3.4	0.0	35	
	Day 6	13.7	32.7	<u>13.7</u>	10.3	1.7	3.4	6.8	8.6	1.7	1.7	1.7	3.4	40	
	Day 7	15.5	25.8	<u>20.6</u>	13.7	3.4	6.8	1.7	0.0	5.1	1.7	1.7	3.4	38	
3	Day 1	19.7	19.7	<u>14.4</u>	11.8	7.8	3.9	5.2	3.9	3.9	1.3	0.0	7.8	45	76
	Day 2	15.7	15.7	<u>17.1</u>	<u>17.1</u>	3.9	1.3	7.8	5.2	0.0	2.6	1.3	11.8	56	
	Day 3	7.8	19.7	21.0	<u>17.1</u>	2.6	3.9	1.3	2.6	2.6	5.2	1.3	14.4	58	
	Day 4	10.5	25.0	<u>18.4</u>	11.8	3.9	0.6	3.9	5.2	3.9	3.9	2.6	7.8	51	
	Day 5	11.8	23.6	<u>19.7</u>	14.4	6.5	3.9	6.5	5.2	3.9	1.3	0.0	2.6	39	
	Day 6	18.4	23.6	<u>13.1</u>	18.4	3.9	2.6	6.5	5.2	1.3	2.6	0.0	3.9	37	
	Day 7	14.4	22.3	<u>19.7</u>	15.7	7.8	5.2	2.6	3.9	3.9	1.3	0.0	2.6	37	

Table 2-27 Importance vs Maximum 3-Hour ap Distribution For Type V Sweeps

Importance	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
1	Day 1	18.2	29.1	<u>17.5</u>	14.1	4.4	4.6	2.4	3.3	1.4	1.0	1.0	2.3	32	946
	Day 2	18.4	27.2	<u>15.6</u>	16.2	3.4	5.6	3.3	3.8	2.1	1.1	0.9	1.7	33	
	Day 3	18.1	27.4	<u>16.9</u>	15.7	5.2	5.4	3.1	2.6	1.6	1.0	0.9	1.3	31	
	Day 4	17.4	26.7	<u>17.9</u>	15.4	4.9	5.3	2.5	3.0	1.7	1.6	0.7	2.2	34	
	Day 5	19.2	25.7	<u>18.2</u>	13.4	4.2	4.9	3.3	3.8	2.1	1.2	0.9	2.5	35	
	Day 6	18.3	25.0	<u>19.2</u>	15.3	3.9	5.0	2.7	4.1	1.2	2.0	0.9	1.9	34	
	Day 7	17.6	29.4	<u>18.7</u>	13.5	3.8	3.6	2.9	3.0	2.1	1.3	1.0	2.5	33	
2	Day 1	17.8	26.0	<u>16.0</u>	15.3	4.6	4.9	3.6	4.1	2.2	1.6	1.7	2.1	36	999
	Day 2	16.8	26.5	<u>17.0</u>	16.4	3.8	5.2	3.8	3.6	1.4	1.5	1.2	2.7	35	
	Day 3	18.4	26.6	<u>18.4</u>	15.8	4.5	4.5	2.6	2.5	1.9	1.2	1.1	2.4	34	
	Day 4	17.4	27.7	<u>19.4</u>	14.0	5.1	3.8	3.8	2.5	2.1	0.5	1.0	2.6	33	
	Day 5	16.4	26.3	<u>19.6</u>	16.8	4.5	3.5	3.2	3.2	1.8	1.1	1.3	2.2	34	
	Day 6	18.3	28.8	<u>18.1</u>	16.4	4.9	4.1	3.5	2.2	1.6	0.6	1.3	2.1	32	
	Day 7	19.1	28.8	<u>18.7</u>	14.4	5.5	3.0	2.5	1.9	2.1	0.5	0.8	2.6	31	
3	Day 1	15.9	26.3	<u>18.9</u>	13.6	4.6	4.8	3.0	3.9	2.3	2.3	1.1	2.7	36	432
	Day 2	17.1	28.2	<u>16.8</u>	12.2	4.1	4.3	4.3	2.5	2.7	2.0	0.6	4.3	38	
	Day 3	18.0	21.9	<u>20.1</u>	15.5	3.9	5.7	4.1	1.8	2.3	2.0	0.9	3.2	36	
	Day 4	16.6	23.3	<u>17.1</u>	13.8	5.7	3.4	4.3	5.5	1.8	1.1	0.9	5.7	43	
	Day 5	17.1	23.3	<u>17.5</u>	14.1	5.3	3.7	5.5	1.6	3.0	2.5	2.0	3.9	40	
	Day 6	20.3	22.2	<u>15.5</u>	13.8	6.4	3.9	3.0	4.6	2.5	0.6	3.0	3.7	38	
	Day 7	18.9	23.8	<u>17.8</u>	13.4	6.2	3.9	3.4	3.4	1.3	2.0	1.6	3.7	37	

Chapter 3

RELATIONSHIP BETWEEN X-RAY EVENTS AND GEOMAGNETIC INDEX

3-1 INTRODUCTION. Satellites monitor the Sun's x-ray emissions continuously. Sensors routinely record solar energy output in two wavelength bands: 1 to 8 Angstroms (soft) and 1/2 to 4 Angstroms (hard). As with radio emissions, *total* solar output is measured; not from any particular region on the Sun. X-ray reports for this study are from NGDC's database. The period of record for this data is 11 years, from June 1976 to September 1986.

Solar flares are closely associated with bursts of x-ray emissions. Based on the order of magnitude of the peak x-ray energy output, flares are classified into three general categories: "C," "M," and "X." "X-class" events are more energetic than "C-class" events. For soft x-rays, "X-class" events have an energy output greater than or equal to 1×10^{-4} Watts per square meter (W/m^2). "M-class" events have an output 10^{-5} W/m^2 , and "C-class" events have an output 10^{-6} W/m^2 . For example, a "C1" event represents a peak x-ray flux of $1 \times 10^{-6} \text{ W/m}^2$, while an "X9" represents $9 \times 10^{-4} \text{ W/m}^2$.

X-ray reports were merged with 3-hour ap values for 7 days after each event. Next, daily Ap (mean of 8 3-hour ap values) and maximum 3-hour ap values for each 24-hour period were calculated. The resultant dataset was analyzed with respect to x-ray classification. Contingency tables of means and percent frequency distributions of Ap summarize the results.

3-2 CONDITIONAL CLIMATOLOGY TABLES.

Tables 3-1 through 3-3 summarize mean Ap conditions for "C", "M", and "X-Class" events, respectively, for Days 1 through 7 following an x-ray burst. As with previous tables, the classification abbreviation is on the left, followed by mean daily Ap and mean maximum 3-hour ap. The total number of events that are included with each class is in the far right column.

Tables 3-4 through 3-9 show the daily Ap, and maximum 3-hour ap distributions associated with each class of x-ray event. The format is the same as previous distribution tables.

Table 3-1 Class vs Mean Ap For C-Class X-ray Events

X-ray Class	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
C1	16	16	15	16	16	16	15	33	32	31	32	32	32	31	1650
C2	16	16	16	17	17	16	17	32	32	33	33	34	32	33	2080
C3	17	17	17	17	17	18	17	34	33	34	34	35	35	34	1089
C4	17	17	16	17	18	18	16	33	33	31	36	36	35	31	700
C5	19	18	17	16	18	18	18	37	37	33	37	37	36	36	562
C6	17	19	18	19	20	19	18	33	37	38	37	40	39	36	390
C7	18	19	19	17	18	18	17	36	36	38	33	38	37	34	288
C8	19	19	19	18	17	16	16	37	37	38	35	35	31	31	233
C9	21	17	18	19	18	18	19	42	34	35	36	35	36	37	223

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Table 3-2 Class vs Mean Ap For M-Class X-ray Events

X-ray Class	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
M1	19	19	20	20	19	19	19	38	38	39	40	38	39	38	930
M2	20	21	22	22	21	19	18	41	43	44	43	39	39	37	446
M3	19	20	21	19	19	18	19	39	41	40	40	38	38	37	168
M4	18	19	22	20	21	20	20	37	38	45	42	41	39	39	110
M5	23	26	23	24	23	23	17	47	52	47	48	48	44	36	72
M6	19	17	16	21	22	16	18	41	35	31	36	42	32	32	37
M7	18	23	22	18	17	16	17	40	50	45	36	32	32	35	36
M8	16	23	23	18	22	20	15	34	48	49	37	46	36	34	38
M9	16	16	13	15	20	22	22	34	34	23	29	39	43	40	22

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Table 3-3 Class vs Mean Ap For X-Class X-ray Events

X-ray Class	<----- Mean Daily Ap ----->							<- Mean Maximum 3-hour ap ->							Event Count
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
X1	19	22	27	27	22	23	21	40	42	53	53	44	46	43	81
X2	20	22	31	22	14	18	20	38	42	63	41	27	33	36	48
X3	20	21	26	34	36	23	18	42	51	54	57	65	45	42	20
X4	32	41	30	23	21	17	27	52	81	44	46	36	38	48	9
X5	22	23	19	11	23	16	13	44	56	34	29	45	29	23	8
X6	32	21	33	16	17	19	18	53	32	75	23	37	40	39	3
X7	61	>99	71	35	49	18	23	>99	>99	>99	80	>99	32	48	1
X8	9	6	3	4	9	20	78	18	15	5	6	15	56	>99	1
X9	24	37	25	30	65	32	17	47	64	57	53	>99	59	27	4
X10	14	8	18	50	22	50	63	27	18	48	94	39	>99	94	1
X13	10	17	63	39	35	44	48	22	32	>99	80	67	80	>99	1

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Table 3-4 Class vs Daily Ap Distribution For C-Class X-ray Events

(----- Daily Ap Distribution -----)														
X-ray Class	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
C1	Day 1	44.5	<u>31.7</u>	11.6	5.8	2.8	1.3	0.5	0.6	0.1	0.0	0.4	16	1650
	Day 2	44.7	<u>31.8</u>	12.5	4.7	2.6	0.9	0.8	0.7	0.3	0.1	0.4	16	
	Day 3	46.3	<u>31.2</u>	12.4	5.6	1.8	1.1	0.3	0.2	0.1	0.1	0.4	15	
	Day 4	47.2	<u>29.4</u>	11.9	5.1	3.3	1.0	0.4	0.3	0.4	0.0	0.4	16	
	Day 5	45.9	<u>29.2</u>	13.3	5.5	2.7	1.5	0.4	0.4	0.3	0.0	0.3	16	
	Day 6	45.3	<u>29.6</u>	13.9	4.9	3.0	1.5	0.3	0.6	0.1	0.0	0.2	16	
	Day 7	45.6	<u>31.2</u>	12.5	5.5	2.7	0.9	0.7	0.1	0.1	0.0	0.2	15	
C2	Day 1	44.0	<u>33.3</u>	11.7	5.0	2.2	1.7	0.7	0.2	0.0	0.1	0.6	16	2060
	Day 2	44.8	<u>31.5</u>	11.9	5.6	2.5	1.1	0.7	0.7	0.1	0.3	0.2	16	
	Day 3	45.2	<u>30.4</u>	12.9	5.6	2.6	1.3	0.3	0.6	0.1	0.2	0.3	16	
	Day 4	43.4	<u>31.9</u>	12.5	5.5	2.7	1.4	0.5	0.5	0.3	0.2	0.4	17	
	Day 5	42.9	<u>32.9</u>	11.6	6.4	2.6	1.1	0.6	1.0	0.1	0.1	0.3	17	
	Day 6	42.6	<u>34.5</u>	11.7	6.1	1.9	1.1	0.4	0.6	0.0	0.1	0.3	16	
	Day 7	42.0	<u>34.0</u>	12.3	5.2	2.6	1.4	0.6	0.6	0.1	0.1	0.5	17	
C3	Day 1	41.5	<u>33.7</u>	11.4	6.4	2.4	1.6	0.5	0.9	0.0	0.1	0.8	17	1089
	Day 2	41.9	<u>31.3</u>	14.1	5.9	2.7	1.8	0.6	0.7	0.2	0.0	0.2	17	
	Day 3	42.7	<u>32.1</u>	12.9	6.3	2.9	1.1	0.2	0.6	0.1	0.1	0.3	17	
	Day 4	42.9	<u>31.8</u>	12.4	5.6	2.9	1.8	0.4	1.0	0.2	0.0	0.4	17	
	Day 5	43.5	<u>29.9</u>	13.4	6.7	2.8	1.2	0.3	0.7	0.1	0.2	0.5	17	
	Day 6	41.4	<u>32.3</u>	13.8	4.6	2.8	1.9	0.4	0.9	0.5	0.2	0.7	18	
	Day 7	41.4	<u>32.5</u>	13.3	5.1	3.6	1.1	0.9	0.5	0.3	0.3	0.6	17	
C4	Day 1	46.0	<u>30.5</u>	11.5	5.8	2.1	0.8	1.0	0.2	0.5	0.1	1.0	17	700
	Day 2	43.1	<u>31.4</u>	13.8	6.0	2.4	1.1	0.4	0.4	0.1	0.1	0.8	17	
	Day 3	44.7	<u>33.2</u>	12.5	3.8	2.1	0.8	1.1	0.4	0.2	0.4	0.2	16	
	Day 4	41.2	<u>34.8</u>	11.1	5.5	2.5	1.2	1.0	1.0	0.2	0.2	0.7	17	
	Day 5	41.7	<u>31.4</u>	12.0	6.5	3.5	1.4	1.2	0.5	0.8	0.2	0.2	18	
	Day 6	41.1	<u>33.2</u>	12.0	6.7	2.2	1.5	1.2	0.1	0.1	0.1	1.2	18	
	Day 7	43.4	<u>33.0</u>	14.2	3.8	3.0	1.0	0.1	0.2	0.5	0.1	0.2	16	
C5	Day 1	39.1	<u>32.9</u>	11.7	6.4	3.5	2.8	0.5	1.4	0.3	0.5	0.5	19	562
	Day 2	41.8	<u>29.0</u>	12.6	7.4	3.7	3.0	0.7	1.2	0.0	0.1	0.1	18	
	Day 3	43.2	<u>30.0</u>	13.8	6.0	2.3	2.1	0.5	0.8	0.5	0.0	0.3	17	
	Day 4	40.7	<u>29.5</u>	14.5	7.2	2.3	1.6	0.8	1.2	0.5	0.0	1.2	19	
	Day 5	38.2	<u>34.0</u>	12.9	6.2	2.8	1.6	0.3	1.4	0.3	0.0	1.0	18	
	Day 6	40.3	<u>32.3</u>	12.0	6.2	3.3	2.1	1.0	1.0	0.3	0.1	0.7	18	
	Day 7	41.2	<u>33.0</u>	12.4	5.6	3.0	1.4	0.7	0.7	0.1	0.3	1.0	18	

Table 3-4 Class vs Daily Ap Distribution For C-Class X-ray Events
(Continued)

X-ray Class	Days After	Daily Ap Distribution											Mean Ap	Event Count
		Percent Frequency of Occurrence												
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
C6	Day 1	44.3	<u>31.5</u>	11.2	5.8	3.3	1.5	0.5	0.2	0.2	0.2	0.7	17	390
	Day 2	44.1	<u>28.4</u>	11.0	7.1	3.5	1.0	0.5	1.2	1.0	0.2	1.5	19	
	Day 3	38.2	<u>33.8</u>	12.5	6.1	4.3	2.5	0.7	1.0	0.0	0.0	0.5	18	
	Day 4	40.5	<u>32.3</u>	10.2	7.9	3.5	2.3	0.7	1.2	0.2	0.2	0.5	19	
	Day 5	36.4	<u>31.0</u>	15.8	6.1	5.1	1.7	1.2	0.0	0.7	0.0	1.5	20	
	Day 6	41.5	<u>29.2</u>	12.3	7.4	3.0	1.2	1.5	1.5	0.2	0.5	1.2	19	
	Day 7	38.9	<u>33.3</u>	13.8	5.1	2.5	3.3	0.7	1.0	0.2	0.0	0.7	18	
C7	Day 1	40.9	<u>31.9</u>	13.5	3.1	5.9	0.6	1.0	1.7	0.6	0.0	0.3	18	288
	Day 2	39.2	<u>30.2</u>	15.2	7.2	2.4	3.1	0.3	0.0	0.3	0.3	1.3	19	
	Day 3	40.2	<u>29.1</u>	13.1	4.8	5.2	4.5	0.3	1.0	0.0	0.0	1.3	19	
	Day 4	43.4	<u>32.2</u>	12.1	5.5	3.1	1.0	0.6	0.3	0.3	0.3	0.6	17	
	Day 5	42.3	<u>30.5</u>	12.5	4.5	2.7	3.8	1.3	1.0	0.0	0.0	1.0	18	
	Day 6	37.5	<u>32.9</u>	15.9	5.5	4.1	0.6	0.6	0.3	0.0	1.0	1.0	18	
	Day 7	43.4	<u>31.5</u>	11.8	5.9	5.2	0.6	0.0	0.3	0.0	0.3	0.6	17	
C8	Day 1	35.6	<u>31.7</u>	18.0	7.2	3.0	1.2	0.4	0.8	0.8	0.0	0.8	19	233
	Day 2	37.3	<u>36.4</u>	10.3	6.4	4.7	0.8	1.7	0.8	0.0	0.0	1.2	19	
	Day 3	37.3	<u>33.9</u>	13.3	4.7	3.8	4.2	0.4	0.0	0.4	0.0	1.7	19	
	Day 4	41.6	<u>27.8</u>	18.0	4.7	3.0	2.5	0.4	0.4	0.4	0.8	0.0	18	
	Day 5	37.3	<u>34.3</u>	13.7	7.2	3.4	2.1	0.4	0.4	0.4	0.0	0.4	17	
	Day 6	42.0	<u>34.3</u>	12.8	5.1	2.1	0.8	0.8	1.2	0.0	0.4	0.0	16	
	Day 7	45.4	<u>33.9</u>	9.4	4.7	3.4	0.8	0.0	0.8	0.0	0.0	1.2	16	
C9	Day 1	42.1	<u>26.0</u>	11.6	8.5	4.9	2.2	0.0	1.3	0.4	0.8	1.7	21	223
	Day 2	40.3	<u>34.0</u>	11.6	6.2	4.9	0.8	0.0	1.3	0.4	0.0	0.0	17	
	Day 3	43.4	<u>31.8</u>	9.4	8.5	3.1	0.4	0.8	0.4	0.4	0.4	0.8	18	
	Day 4	38.1	<u>31.8</u>	14.7	5.3	5.8	1.7	1.3	0.0	0.0	0.4	0.4	19	
	Day 5	43.9	<u>26.9</u>	15.6	4.4	3.1	2.2	0.4	2.2	0.0	0.4	0.4	18	
	Day 6	36.7	<u>33.6</u>	14.7	6.7	4.9	0.8	1.3	0.8	0.0	0.0	0.0	18	
	Day 7	41.2	<u>29.5</u>	14.7	4.9	3.1	2.2	0.0	2.2	0.4	0.0	1.3	19	

Table 3-5 Class vs Daily Ap Distribution For M-Class X-ray Events

X-ray Class	Days After	----- Daily Ap Distribution -----											Mean Ap	Event Count
		Percent Frequency of Occurrence												
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
M1	Day 1	41.5	<u>30.7</u>	10.0	8.1	4.4	2.0	1.0	0.7	0.3	0.1	0.8	19	930
	Day 2	37.0	<u>33.9</u>	11.8	7.9	3.8	2.2	0.7	0.5	0.2	0.5	0.9	19	
	Day 3	35.6	<u>31.2</u>	14.8	8.6	4.8	2.1	0.8	0.7	0.2	0.0	0.7	20	
	Day 4	37.0	<u>32.6</u>	13.0	6.3	4.3	2.0	1.3	0.9	0.6	0.2	1.2	20	
	Day 5	36.1	<u>32.9</u>	14.5	7.0	3.6	3.0	0.6	0.4	0.2	0.5	0.8	19	
	Day 6	38.3	<u>31.1</u>	13.9	6.5	4.6	1.9	0.6	0.7	0.8	0.1	0.9	19	
	Day 7	37.7	<u>32.5</u>	13.2	6.4	4.0	2.5	1.0	1.1	0.3	0.2	0.5	19	
M2	Day 1	39.0	<u>30.0</u>	10.0	9.8	4.9	2.6	0.6	0.6	0.2	0.6	1.1	20	446
	Day 2	35.6	<u>32.9</u>	10.7	8.2	5.1	1.5	1.5	1.3	0.4	0.6	1.5	21	
	Day 3	34.7	<u>31.3</u>	14.5	8.7	4.0	0.8	1.3	1.1	0.2	1.3	1.5	22	
	Day 4	35.8	<u>33.1</u>	13.0	6.7	4.7	1.7	1.1	0.8	0.0	0.4	2.2	22	
	Day 5	34.9	<u>32.2</u>	15.4	7.8	3.3	1.7	1.3	1.1	0.2	0.0	1.5	21	
	Day 6	35.4	<u>32.9</u>	15.4	6.9	4.4	1.7	1.1	0.6	0.2	0.2	0.6	19	
	Day 7	37.8	<u>32.2</u>	15.0	6.9	3.1	2.0	0.6	1.1	0.2	0.2	0.4	18	
M3	Day 1	41.0	<u>27.3</u>	14.2	7.1	4.1	1.7	2.3	1.1	0.0	0.0	0.5	19	168
	Day 2	32.7	<u>32.7</u>	15.4	8.9	3.5	2.3	2.9	0.5	0.0	0.0	0.5	20	
	Day 3	33.9	<u>28.5</u>	17.2	9.5	7.1	1.1	0.0	1.1	0.5	0.0	0.5	21	
	Day 4	31.5	<u>33.3</u>	23.8	4.7	2.9	2.3	0.0	0.0	0.0	0.5	0.5	19	
	Day 5	33.9	<u>31.5</u>	18.4	6.5	5.9	1.1	0.5	0.5	0.0	0.5	0.5	19	
	Day 6	41.6	<u>29.7</u>	15.4	4.7	2.9	2.9	0.0	0.5	0.0	0.0	1.7	18	
	Day 7	40.4	<u>25.0</u>	19.0	5.9	4.7	2.3	1.7	0.0	0.0	0.0	0.5	19	
M4	Day 1	35.4	<u>41.8</u>	9.0	6.3	1.8	0.0	2.7	1.8	0.0	0.0	0.9	18	110
	Day 2	45.4	<u>22.7</u>	13.6	8.1	4.5	3.6	0.0	0.0	0.9	0.0	0.9	19	
	Day 3	39.0	<u>32.7</u>	9.0	3.6	5.4	3.6	0.9	1.8	1.8	0.0	1.8	22	
	Day 4	33.6	<u>35.4</u>	10.0	11.8	2.7	3.6	0.9	0.0	0.0	0.0	1.8	20	
	Day 5	30.0	<u>38.1</u>	10.0	10.9	4.5	4.5	0.9	0.0	0.0	0.0	0.9	21	
	Day 6	40.0	<u>38.1</u>	8.1	2.7	5.4	0.0	1.8	0.0	1.8	0.0	1.8	20	
	Day 7	38.1	<u>31.8</u>	18.1	1.8	4.5	0.9	1.8	0.0	0.0	0.9	1.8	20	
M5	Day 1	37.5	<u>27.7</u>	8.3	6.9	9.7	4.1	2.7	0.0	0.0	0.0	2.7	23	72
	Day 2	34.7	<u>26.3</u>	12.5	13.8	4.1	1.3	2.7	1.3	0.0	0.0	2.7	26	
	Day 3	26.3	<u>31.9</u>	11.1	19.4	4.1	4.1	0.0	0.0	1.3	0.0	1.3	23	
	Day 4	23.6	<u>33.3</u>	19.4	9.7	5.5	1.3	0.0	4.1	1.3	0.0	1.3	24	
	Day 5	26.3	<u>29.1</u>	26.3	1.3	8.3	4.1	2.7	0.0	0.0	0.0	1.3	23	
	Day 6	26.3	<u>36.1</u>	16.6	11.1	1.3	1.3	2.7	0.0	0.0	1.3	2.7	23	
	Day 7	38.8	<u>27.7</u>	13.8	13.8	2.7	2.7	0.0	0.0	0.0	0.0	0.0	17	

Table 3-5 Class vs Daily Ap Distribution For M-Class X-ray Events
(Continued)

Daily Ap Distribution ----->														
X-ray Class	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
M6	Day 1	40.5	<u>32.4</u>	10.8	5.4	2.7	2.7	0.0	2.7	0.0	0.0	2.7	19	37
	Day 2	48.6	<u>24.3</u>	13.5	8.1	2.7	0.0	0.0	2.7	0.0	0.0	0.0	17	
	Day 3	45.9	<u>37.8</u>	8.1	2.7	0.0	0.0	0.0	0.0	2.7	0.0	2.7	16	
	Day 4	21.6	<u>51.3</u>	10.8	10.8	0.0	0.0	0.0	0.0	0.0	2.7	2.7	21	
	Day 5	32.4	<u>40.5</u>	10.8	8.1	0.0	5.4	0.0	0.0	0.0	0.0	2.7	22	
	Day 6	43.2	<u>35.1</u>	8.1	5.4	5.4	2.7	0.0	0.0	0.0	0.0	0.0	16	
	Day 7	40.5	<u>29.7</u>	10.8	8.1	5.4	2.7	2.7	0.0	0.0	0.0	0.0	18	
M7	Day 1	41.6	<u>27.7</u>	16.6	2.7	0.0	8.3	0.0	2.7	0.0	0.0	0.0	18	36
	Day 2	30.5	<u>33.3</u>	5.5	16.6	5.5	0.0	5.5	0.0	0.0	0.0	2.7	23	
	Day 3	25.0	<u>33.3</u>	19.4	5.5	11.1	2.7	0.0	0.0	2.7	0.0	0.0	22	
	Day 4	33.3	<u>36.1</u>	13.8	5.5	8.3	2.7	0.0	0.0	0.0	0.0	0.0	18	
	Day 5	36.1	<u>36.1</u>	16.6	5.5	2.7	0.0	2.7	0.0	0.0	0.0	0.0	17	
	Day 6	36.1	<u>44.4</u>	11.1	2.7	0.0	5.5	0.0	0.0	0.0	0.0	0.0	16	
	Day 7	<u>50.0</u>	22.2	11.1	5.5	11.1	0.0	0.0	0.0	0.0	0.0	0.0	17	
M8	Day 1	<u>50.0</u>	31.5	2.6	5.2	5.2	5.2	0.0	0.0	0.0	0.0	0.0	16	38
	Day 2	<u>34.2</u>	<u>28.9</u>	5.2	15.7	13.1	0.0	0.0	0.0	0.0	0.0	2.6	23	
	Day 3	<u>34.2</u>	<u>34.2</u>	5.2	13.1	7.8	2.6	0.0	0.0	0.0	0.0	2.6	23	
	Day 4	36.8	<u>39.4</u>	15.7	5.2	0.0	0.0	0.0	0.0	0.0	0.0	2.6	18	
	Day 5	31.5	<u>44.7</u>	7.8	2.6	5.2	5.2	0.0	0.0	0.0	0.0	2.6	22	
	Day 6	28.9	<u>42.1</u>	15.7	5.2	2.6	2.6	0.0	0.0	0.0	2.6	0.0	20	
	Day 7	<u>50.0</u>	26.3	15.7	5.2	2.6	0.0	0.0	0.0	0.0	0.0	0.0	15	
M9	Day 1	40.9	<u>31.8</u>	18.1	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	16	22
	Day 2	<u>59.0</u>	18.1	9.0	9.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	16	
	Day 3	<u>54.5</u>	27.2	13.6	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	13	
	Day 4	27.2	<u>59.0</u>	4.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	
	Day 5	22.7	<u>54.5</u>	4.5	9.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	20	
	Day 6	36.3	<u>50.0</u>	4.5	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	22	
	Day 7	22.7	<u>45.4</u>	13.6	9.0	0.0	0.0	4.5	0.0	4.5	0.0	0.0	22	

Table 3-6 Class vs Daily Ap Distribution For X-Class X-ray Events

X-ray Class	Days After	Daily Ap Distribution ----->											Mean Ap	Event Count
		Percent Frequency of Occurrence												
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
X1	Day 1	39.5	<u>22.2</u>	18.5	11.1	4.9	2.4	1.2	0.0	0.0	0.0	0.0	19	81
	Day 2	37.0	<u>23.4</u>	14.8	9.8	9.8	2.4	0.0	0.0	1.2	0.0	1.2	22	
	Day 3	23.4	<u>33.3</u>	14.8	7.4	11.1	3.7	2.4	0.0	1.2	0.0	2.4	27	
	Day 4	25.9	<u>23.4</u>	<u>14.8</u>	16.0	8.6	6.1	1.2	1.2	0.0	0.0	2.4	27	
	Day 5	28.3	<u>34.5</u>	12.3	11.1	8.6	3.7	0.0	0.0	0.0	0.0	1.2	22	
	Day 6	18.5	<u>34.5</u>	20.9	13.5	3.7	4.9	1.2	1.2	1.2	0.0	0.0	23	
	Day 7	29.6	<u>35.8</u>	13.5	4.9	7.4	4.9	3.7	0.0	0.0	0.0	0.0	21	
X2	Day 1	47.9	<u>27.0</u>	10.4	2.0	2.0	2.0	2.0	4.1	0.0	0.0	2.0	20	48
	Day 2	35.4	<u>33.3</u>	10.4	8.3	4.1	4.1	0.0	0.0	2.0	0.0	2.0	22	
	Day 3	27.0	<u>27.0</u>	16.6	0.0	6.2	12.5	2.0	2.0	0.0	0.0	6.2	31	
	Day 4	22.9	<u>41.6</u>	16.6	10.4	4.1	2.0	0.0	0.0	0.0	0.0	2.0	22	
	Day 5	47.9	<u>29.1</u>	18.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	
	Day 6	35.4	<u>39.5</u>	10.4	8.3	4.1	0.0	2.0	0.0	0.0	0.0	0.0	18	
	Day 7	39.5	<u>31.2</u>	18.7	6.2	0.0	2.0	0.0	0.0	0.0	0.0	2.0	20	
X3	Day 1	35.0	<u>25.0</u>	20.0	10.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	20	20
	Day 2	<u>50.0</u>	15.0	15.0	0.0	5.0	5.0	10.0	0.0	0.0	0.0	0.0	21	
	Day 3	30.0	<u>25.0</u>	25.0	5.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	26	
	Day 4	35.0	<u>25.0</u>	10.0	0.0	10.0	5.0	0.0	5.0	0.0	0.0	10.0	34	
	Day 5	25.0	<u>35.0</u>	5.0	10.0	0.0	15.0	0.0	0.0	0.0	0.0	10.0	36	
	Day 6	35.0	<u>40.0</u>	0.0	15.0	5.0	0.0	0.0	0.0	0.0	0.0	5.0	23	
	Day 7	45.0	<u>25.0</u>	15.0	5.0	0.0	5.0	0.0	5.0	0.0	0.0	0.0	18	
X4	Day 1	22.2	11.1	<u>33.3</u>	11.1	0.0	11.1	0.0	0.0	0.0	11.1	0.0	32	9
	Day 2	22.2	0.0	11.1	<u>22.2</u>	11.1	22.2	0.0	0.0	0.0	0.0	11.1	41	
	Day 3	33.3	<u>22.2</u>	11.1	22.2	0.0	0.0	0.0	0.0	0.0	0.0	11.1	30	
	Day 4	33.3	0.0	<u>33.3</u>	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
	Day 5	33.3	<u>22.2</u>	33.3	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	21	
	Day 6	11.1	<u>66.6</u>	11.1	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	
	Day 7	11.1	<u>55.5</u>	11.1	0.0	0.0	11.1	0.0	11.1	0.0	0.0	0.0	27	
X5	Day 1	25.0	12.5	<u>50.0</u>	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	22	8
	Day 2	0.0	<u>50.0</u>	37.5	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	23	
	Day 3	37.5	<u>37.5</u>	12.5	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	19	
	Day 4	<u>50.0</u>	<u>50.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	
	Day 5	12.5	<u>37.5</u>	25.0	12.5	12.5	0.0	0.0	0.0	0.0	0.0	0.0	23	
	Day 6	37.5	<u>25.0</u>	37.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	Day 7	37.5	<u>50.0</u>	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	

Table 3-6 Class vs Daily Ap Distribution For X-Class X-ray Events
(Continued)

<----- Daily Ap Distribution ----->														
X-ray Class	Days After	Percent Frequency of Occurrence											Mean Ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	>100		
X6	Day 1	33.3	0.0	0.0	<u>33.3</u>	0.0	33.3	0.0	0.0	0.0	0.0	0.0	32	3
	Day 2	0.0	<u>66.6</u>	0.0	<u>33.3</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	
	Day 3	0.0	33.3	0.0	<u>33.3</u>	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33	
	Day 4	33.3	<u>33.3</u>	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	
	Day 5	33.3	<u>33.3</u>	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	
	Day 6	33.3	<u>33.3</u>	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	19	
	Day 7	33.3	<u>33.3</u>	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	
X9	Day 1	<u>50.0</u>	0.0	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	24	4
	Day 2	<u>50.0</u>	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	37	
	Day 3	25.0	0.0	<u>50.0</u>	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	
	Day 4	0.0	<u>50.0</u>	25.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	30	
	Day 5	0.0	<u>75.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	65	
	Day 6	25.0	<u>25.0</u>	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	32	
	Day 7	<u>50.0</u>	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	

Table 3-7 Class vs Maximum 3-Hour ap Distribution For C-Class X-ray Events

X-ray Class	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
C1	Day 1	17.3	26.3	<u>19.1</u>	15.8	5.0	4.5	3.8	2.4	1.6	1.1	0.8	1.7	33	1650
	Day 2	18.6	26.7	<u>17.3</u>	16.5	5.8	4.0	2.7	2.1	2.4	0.6	0.9	1.9	32	
	Day 3	17.8	29.4	<u>17.0</u>	15.6	5.8	3.9	2.9	2.7	1.5	0.8	1.0	0.9	31	
	Day 4	19.0	28.3	<u>17.0</u>	14.9	4.7	3.4	3.3	3.1	2.6	0.7	0.9	1.6	32	
	Day 5	18.7	26.9	<u>17.1</u>	15.1	5.5	3.3	3.6	3.5	2.4	0.6	0.3	2.0	32	
	Day 6	18.9	27.2	<u>16.6</u>	15.5	6.3	2.7	3.7	3.0	1.7	1.2	0.7	1.7	32	
	Day 7	18.5	26.4	<u>17.6</u>	16.2	4.6	4.1	4.2	3.5	1.9	1.0	0.3	1.2	31	
C2	Day 1	17.1	27.5	<u>18.7</u>	15.5	5.1	4.6	2.7	2.7	1.9	1.2	0.9	1.6	32	2060
	Day 2	17.8	26.8	<u>18.6</u>	15.8	5.6	3.3	3.3	3.1	2.0	0.7	0.7	1.7	32	
	Day 3	16.6	28.4	<u>16.2</u>	15.2	5.7	4.0	2.7	2.7	1.9	0.9	1.4	1.6	33	
	Day 4	15.7	27.8	<u>18.9</u>	15.5	5.8	3.4	3.5	2.6	2.2	1.0	0.7	2.2	33	
	Day 5	15.3	28.9	<u>19.0</u>	15.0	4.9	3.7	3.3	2.8	2.4	0.7	1.1	2.3	34	
	Day 6	15.1	27.9	<u>20.6</u>	16.4	4.4	3.7	3.2	2.9	2.2	0.8	0.6	1.7	32	
	Day 7	16.2	25.4	<u>20.1</u>	17.0	5.3	3.0	3.2	3.0	2.3	1.1	1.0	1.7	33	
C3	Day 1	14.1	28.7	<u>18.9</u>	15.9	4.6	3.5	3.2	3.6	2.5	1.2	0.9	2.2	34	1089
	Day 2	15.4	28.3	<u>18.3</u>	15.0	5.0	4.2	3.8	3.5	2.0	1.2	0.8	1.9	33	
	Day 3	15.4	27.1	<u>18.7</u>	16.4	5.2	3.8	3.3	3.4	2.0	1.0	1.1	2.1	34	
	Day 4	16.3	27.1	<u>18.7</u>	16.6	4.3	3.5	3.1	3.4	2.3	0.7	1.1	2.3	34	
	Day 5	16.5	24.8	<u>19.8</u>	14.2	6.2	4.5	3.3	3.6	2.1	1.1	0.9	2.4	35	
	Day 6	16.2	26.4	<u>18.1</u>	16.8	4.1	4.4	3.3	3.2	1.5	1.1	1.7	2.6	35	
	Day 7	16.2	25.2	<u>18.2</u>	17.2	4.6	4.9	3.4	3.5	1.7	1.1	1.1	2.2	34	
C4	Day 1	19.4	26.8	<u>15.8</u>	17.4	4.5	3.8	3.8	2.1	1.2	1.1	0.7	2.8	33	700
	Day 2	14.1	30.4	<u>17.4</u>	16.0	5.2	5.0	3.7	2.7	2.2	0.5	0.4	2.0	33	
	Day 3	18.5	26.8	<u>19.0</u>	17.8	3.1	3.4	2.7	3.0	1.5	0.8	1.2	1.7	31	
	Day 4	15.4	26.2	<u>21.2</u>	14.5	4.2	4.1	3.2	2.5	2.0	1.7	1.5	2.8	36	
	Day 5	16.4	26.0	<u>18.2</u>	14.1	5.0	4.0	4.5	3.4	2.7	0.8	1.1	3.4	36	
	Day 6	15.7	24.2	<u>21.5</u>	15.8	4.5	4.4	3.4	3.1	2.4	1.2	0.5	2.7	35	
	Day 7	15.5	27.8	<u>21.5</u>	15.2	5.8	3.4	3.5	2.4	2.0	0.5	1.0	0.8	31	
C5	Day 1	14.7	23.1	<u>21.5</u>	15.1	5.3	3.0	5.3	3.3	2.6	1.2	1.2	3.2	37	562
	Day 2	14.2	27.0	<u>17.4</u>	13.8	5.3	4.9	4.2	3.7	3.9	1.9	1.0	2.1	37	
	Day 3	17.0	24.9	<u>18.8</u>	16.1	6.5	4.0	3.0	3.2	2.6	0.7	0.3	2.3	33	
	Day 4	14.5	25.2	<u>20.2</u>	14.4	6.5	3.5	3.7	3.0	2.6	1.0	1.6	3.2	37	
	Day 5	14.9	22.2	<u>19.7</u>	18.1	4.6	6.0	3.2	3.5	1.7	1.9	0.8	2.8	37	
	Day 6	14.5	26.6	<u>18.1</u>	16.1	4.0	5.3	2.8	3.5	3.5	0.3	1.7	2.8	36	
	Day 7	13.7	28.8	<u>19.9</u>	13.5	5.8	4.9	2.8	3.3	1.0	1.6	0.8	3.3	36	

**Table 3-7 Class vs Maximum 3-Hour ap Distribution For C-Class X-ray Events
(Continued)**

X-ray Class	Days After	Maximum 3-hour ap Distribution -----)												Mean ap	Event Count
		Percent Frequency of Occurrence													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
C6	Day 1	16.6	26.6	<u>19.7</u>	15.6	4.3	3.8	3.3	3.0	1.7	1.2	1.7	1.7	33	390
	Day 2	19.7	25.6	<u>17.9</u>	11.7	5.1	3.3	4.3	2.5	2.3	0.7	2.3	4.1	37	
	Day 3	16.4	25.1	<u>15.3</u>	17.6	3.8	4.8	5.3	3.5	1.5	1.7	1.2	3.0	38	
	Day 4	16.1	26.4	<u>17.9</u>	14.6	3.0	3.5	5.3	4.6	2.3	1.0	2.3	2.5	37	
	Day 5	12.3	23.5	<u>16.4</u>	18.9	6.4	4.3	3.8	4.6	4.1	0.0	1.7	3.5	40	
	Day 6	15.8	23.5	<u>20.2</u>	14.8	4.6	3.5	2.5	5.1	2.0	1.0	2.3	4.1	39	
	Day 7	14.1	27.1	<u>18.9</u>	15.8	5.3	4.1	3.3	2.8	2.8	1.2	1.2	2.8	36	
C7	Day 1	14.5	24.3	<u>21.1</u>	15.2	5.2	5.5	2.7	2.7	3.1	1.0	2.0	2.0	36	288
	Day 2	13.8	26.3	<u>18.0</u>	16.3	4.1	5.5	5.5	3.8	1.7	0.6	0.7	3.4	36	
	Day 3	17.3	23.2	<u>19.0</u>	14.2	4.1	4.5	4.1	2.7	4.5	0.6	1.0	4.1	38	
	Day 4	15.9	26.7	<u>22.2</u>	15.6	2.7	4.5	2.7	3.8	0.6	1.3	1.0	2.4	33	
	Day 5	13.1	28.1	<u>18.7</u>	18.4	3.8	2.4	3.1	2.4	1.7	2.0	2.4	3.4	38	
	Day 6	15.9	24.3	<u>15.2</u>	10.0	7.6	3.4	3.4	3.8	3.1	0.6	0.6	2.4	37	
	Day 7	15.9	27.7	<u>18.4</u>	15.6	7.2	3.1	1.3	4.5	1.7	1.3	1.3	1.3	34	
C8	Day 1	14.1	22.7	<u>18.4</u>	15.0	7.7	6.8	5.5	2.5	1.7	0.4	2.1	2.5	37	233
	Day 2	10.7	29.6	<u>18.0</u>	20.1	3.0	3.8	3.4	3.0	2.5	1.2	1.7	2.5	37	
	Day 3	15.0	22.3	<u>16.7</u>	19.3	5.5	6.0	2.1	3.8	3.4	1.2	0.8	3.4	38	
	Day 4	12.0	29.1	<u>17.5</u>	15.8	7.2	3.4	4.2	3.0	2.1	2.5	0.4	2.1	35	
	Day 5	16.3	23.1	<u>19.7</u>	16.3	4.7	6.0	3.8	2.5	3.4	0.4	1.7	1.7	35	
	Day 6	16.3	29.6	<u>18.0</u>	14.1	7.7	3.0	2.5	3.0	1.2	1.7	1.7	0.8	31	
	Day 7	18.0	30.0	<u>19.3</u>	12.8	6.0	3.8	2.5	2.5	1.7	0.4	0.4	2.1	31	
C9	Day 1	17.9	23.3	<u>14.3</u>	15.6	3.1	5.8	4.4	5.3	2.2	0.0	3.1	4.4	42	223
	Day 2	17.4	25.5	<u>16.1</u>	18.8	3.1	4.4	6.2	3.1	1.3	1.3	0.0	2.2	34	
	Day 3	14.3	29.1	<u>18.8</u>	10.3	8.0	6.2	4.9	3.1	0.8	0.4	0.4	3.1	35	
	Day 4	15.6	24.6	<u>17.9</u>	19.2	3.5	3.5	3.1	4.0	2.6	2.2	1.3	1.7	36	
	Day 5	17.9	25.1	<u>17.0</u>	15.6	5.3	5.3	3.5	2.6	2.2	0.8	1.3	2.6	35	
	Day 6	11.6	25.5	<u>18.8</u>	18.8	7.1	2.6	4.0	4.4	3.1	0.4	1.3	1.7	36	
	Day 7	17.4	25.5	<u>16.1</u>	15.2	8.0	4.4	0.4	4.9	1.3	0.8	1.7	3.5	37	

Table 3-8 Class vs Maximum 3-Hour ap Distribution For M-Class X-ray Events

X-ray Class	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
M1	Day 1	15.6	26.9	<u>17.6</u>	14.5	4.0	4.1	3.7	3.3	3.6	1.6	1.6	2.9	38	930
	Day 2	12.7	23.9	<u>17.6</u>	18.4	4.7	4.5	4.6	4.5	2.9	1.7	1.3	2.6	38	
	Day 3	13.8	22.7	<u>18.3</u>	13.9	7.4	5.6	4.4	4.8	3.4	2.0	0.7	2.3	39	
	Day 4	12.9	23.3	<u>18.3</u>	16.2	7.4	4.8	3.5	3.9	3.0	1.3	1.1	3.7	40	
	Day 5	12.1	25.5	<u>19.1</u>	15.2	6.3	5.0	4.0	3.9	2.9	1.9	1.2	2.2	38	
	Day 6	11.8	26.1	<u>18.0</u>	16.6	6.8	4.6	4.4	3.5	1.9	0.8	1.6	3.4	39	
	Day 7	13.0	26.2	<u>17.5</u>	17.2	4.4	4.9	4.0	3.0	3.7	0.9	1.1	3.6	38	
M2	Day 1	14.5	25.5	<u>16.5</u>	12.7	5.8	4.9	3.5	5.3	4.0	1.7	1.1	3.8	41	446
	Day 2	13.4	21.0	<u>21.7</u>	13.6	4.0	4.2	6.7	3.3	3.8	1.3	2.0	4.4	43	
	Day 3	12.3	22.4	<u>18.1</u>	15.4	6.0	5.3	4.0	4.9	2.4	3.1	1.3	4.2	44	
	Day 4	10.3	24.6	<u>18.1</u>	17.9	7.3	5.1	3.5	3.1	2.4	1.3	1.7	4.0	43	
	Day 5	11.4	22.8	<u>19.7</u>	17.4	7.3	4.7	4.7	3.3	2.0	2.2	1.5	2.4	39	
	Day 6	11.2	24.2	<u>20.6</u>	14.7	6.7	5.8	3.5	4.0	3.8	1.7	1.1	2.2	39	
	Day 7	11.6	26.5	<u>18.3</u>	18.3	4.4	4.2	3.8	3.5	2.4	1.7	2.4	2.0	37	
M3	Day 1	16.0	25.5	<u>16.6</u>	12.5	6.5	4.7	3.5	5.9	1.1	2.9	1.1	2.9	39	168
	Day 2	12.5	22.6	<u>16.0</u>	15.4	6.5	5.3	6.5	7.1	1.7	2.3	1.1	2.3	41	
	Day 3	14.8	17.2	<u>17.2</u>	<u>18.4</u>	7.1	6.5	6.5	3.5	1.7	3.5	0.5	2.3	40	
	Day 4	8.9	25.0	<u>17.2</u>	<u>16.6</u>	10.7	6.5	4.1	3.5	1.7	1.1	1.1	2.9	40	
	Day 5	14.2	22.6	<u>16.0</u>	19.0	7.7	3.5	2.3	4.1	4.7	1.7	2.3	1.1	38	
	Day 6	14.8	27.9	<u>18.4</u>	15.4	6.5	5.3	3.5	0.5	3.5	0.5	0.5	2.3	35	
	Day 7	13.6	27.9	<u>14.8</u>	13.6	5.3	8.9	5.3	2.9	1.1	1.7	1.1	2.9	37	
M4	Day 1	15.4	20.0	<u>24.5</u>	15.4	6.3	3.6	4.3	2.7	0.9	2.7	0.0	3.6	37	110
	Day 2	18.1	26.3	<u>14.5</u>	12.7	2.7	8.1	2.7	5.4	3.6	2.7	0.0	2.7	38	
	Day 3	11.8	29.0	<u>20.0</u>	13.6	3.6	1.8	4.5	2.7	1.8	2.7	2.7	5.4	45	
	Day 4	17.2	16.3	<u>19.0</u>	15.4	9.0	2.7	6.3	4.5	3.6	0.9	1.8	2.7	42	
	Day 5	10.9	22.7	<u>20.0</u>	15.4	3.6	10.9	3.6	3.6	0.9	2.7	2.7	2.7	41	
	Day 6	10.9	28.1	<u>22.7</u>	20.0	0.9	3.6	2.7	1.8	0.9	2.7	1.8	3.6	39	
	Day 7	9.0	27.2	<u>23.6</u>	11.8	10.9	4.5	1.8	2.7	2.7	0.0	0.9	4.5	39	
M5	Day 1	12.5	22.2	13.8	<u>15.2</u>	2.7	6.9	2.7	8.3	6.9	1.3	0.0	6.9	47	72
	Day 2	11.1	22.2	15.2	<u>18.0</u>	4.1	1.3	8.3	6.9	2.7	2.7	0.0	6.9	52	
	Day 3	6.9	19.4	16.6	<u>13.8</u>	6.9	5.5	9.7	11.1	4.1	1.3	0.0	4.1	47	
	Day 4	5.5	20.8	19.4	<u>19.4</u>	4.1	8.3	5.5	4.1	1.3	2.7	1.3	6.9	46	
	Day 5	4.1	19.4	20.8	<u>20.8</u>	5.5	8.3	2.7	5.5	1.3	5.5	1.3	4.1	48	
	Day 6	11.1	16.6	16.6	<u>18.0</u>	11.1	9.7	2.7	4.1	0.0	4.1	0.0	5.5	44	
	Day 7	12.5	27.7	13.8	16.6	8.3	2.7	9.7	5.5	0.0	1.3	0.0	1.3	36	

Table 3-8 Class vs Maximum 3-Hour ap Distribution For M-Class X-ray Events
(Continued)

X-ray Class	Days After	Maximum 3-hour ap Distribution												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
M6	Day 1	18.9	18.9	<u>18.9</u>	16.2	2.7	8.1	2.7	2.7	0.0	5.4	0.0	5.4	41	37
	Day 2	13.5	32.4	<u>21.6</u>	5.4	5.4	5.4	2.7	2.7	0.0	8.1	2.7	0.0	35	
	Day 3	13.5	<u>43.2</u>	<u>21.6</u>	8.1	0.0	2.7	2.7	2.7	0.0	0.0	0.0	5.4	31	
	Day 4	10.8	21.6	<u>21.6</u>	27.0	2.7	8.1	2.7	0.0	0.0	0.0	0.0	5.4	36	
	Day 5	10.8	16.2	<u>27.0</u>	24.3	2.7	5.4	5.4	0.0	2.7	2.7	0.0	2.7	42	
	Day 6	16.2	29.7	<u>13.5</u>	13.5	10.8	5.4	0.0	2.7	8.1	0.0	0.0	0.0	32	
	Day 7	18.9	18.9	<u>21.6</u>	21.6	0.0	2.7	8.1	0.0	8.1	0.0	0.0	0.0	32	
M7	Day 1	16.6	22.2	<u>16.6</u>	16.6	5.5	5.5	2.7	0.0	2.7	5.5	0.0	5.5	40	36
	Day 2	22.2	11.1	11.1	<u>16.6</u>	5.5	5.5	8.3	5.5	2.7	2.7	0.0	8.3	50	
	Day 3	11.1	19.4	16.6	<u>13.8</u>	2.7	11.1	8.3	2.7	2.7	5.5	2.7	2.7	45	
	Day 4	16.6	19.4	<u>16.6</u>	22.2	5.5	5.5	5.5	2.7	0.0	2.7	0.0	2.7	36	
	Day 5	13.8	27.7	<u>13.8</u>	16.6	8.3	13.8	0.0	0.0	5.5	0.0	0.0	0.0	32	
	Day 6	8.3	33.3	<u>16.6</u>	22.2	2.7	11.1	0.0	0.0	0.0	2.7	0.0	2.7	32	
	Day 7	13.8	22.2	<u>27.7</u>	13.8	8.3	0.0	0.0	0.0	5.5	8.3	0.0	0.0	35	
M8	Day 1	15.7	34.2	<u>15.7</u>	13.1	0.0	5.2	2.6	2.6	0.0	7.8	0.0	2.6	34	38
	Day 2	10.5	18.4	<u>23.6</u>	10.5	7.8	5.2	5.2	7.8	5.2	2.6	0.0	2.6	48	
	Day 3	5.2	23.6	<u>28.9</u>	7.8	7.8	0.0	7.8	5.2	2.6	2.6	5.2	2.6	49	
	Day 4	15.7	34.2	<u>7.8</u>	15.7	18.4	2.6	2.6	0.0	0.0	0.0	0.0	2.6	37	
	Day 5	13.1	21.0	<u>31.5</u>	13.1	2.6	0.0	2.6	2.6	0.0	2.6	5.2	5.2	46	
	Day 6	13.1	18.4	<u>28.9</u>	18.4	5.2	2.6	0.0	5.2	0.0	5.2	0.0	2.6	36	
	Day 7	13.1	<u>39.4</u>	18.4	10.5	5.2	0.0	5.2	0.0	0.0	0.0	2.6	5.2	34	
M9	Day 1	13.6	18.1	18.1	<u>22.7</u>	13.6	4.5	0.0	0.0	4.5	4.5	0.0	0.0	34	22
	Day 2	13.6	<u>40.9</u>	18.1	9.0	0.0	4.5	0.0	9.0	0.0	0.0	0.0	4.5	34	
	Day 3	18.1	<u>36.3</u>	22.7	13.6	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	23	
	Day 4	13.6	27.2	<u>18.1</u>	27.2	0.0	4.5	4.5	0.0	4.5	0.0	0.0	0.0	29	
	Day 5	0.0	27.2	<u>36.3</u>	9.0	4.5	4.5	4.5	0.0	4.5	4.5	4.5	0.0	39	
	Day 6	9.0	27.2	<u>31.8</u>	18.1	0.0	0.0	4.5	4.5	0.0	0.0	0.0	4.5	43	
	Day 7	4.5	22.7	22.7	27.2	4.5	4.5	0.0	0.0	4.5	0.0	9.0	0.0	40	

Table 3-9 Class vs Maximum 3-Hour ap Distribution for X-Class X-ray Events

		Maximum 3-hour ap Distribution													
X-ray Class	Days After	Percent Frequency of Occurrence												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
X1	Day 1	17.2	22.2	<u>16.0</u>	12.3	2.4	3.7	8.6	6.1	4.9	2.4	0.0	3.7	40	81
	Day 2	14.8	17.2	<u>18.5</u>	8.6	7.4	12.3	3.7	6.1	3.7	2.4	3.7	1.2	42	
	Day 3	4.9	16.0	27.1	<u>12.3</u>	7.4	4.9	8.6	4.9	2.4	2.4	2.4	6.1	53	
	Day 4	4.9	23.4	9.8	<u>13.5</u>	8.6	8.6	3.7	3.7	13.5	6.1	1.2	2.4	53	
	Day 5	3.7	23.4	20.9	<u>16.0</u>	9.8	3.7	4.9	3.7	6.1	3.7	1.2	2.4	44	
	Day 6	9.8	13.5	17.2	<u>23.4</u>	6.1	6.1	6.1	3.7	3.7	4.9	1.2	3.7	46	
	Day 7	12.3	22.2	13.5	<u>23.4</u>	3.7	3.7	3.7	3.7	6.1	1.2	1.2	4.9	43	
X2	Day 1	12.5	<u>39.5</u>	14.5	10.4	4.1	4.1	0.0	2.0	4.1	2.0	2.0	4.1	38	48
	Day 2	16.6	<u>25.0</u>	12.5	16.6	8.3	0.0	6.2	2.0	0.0	4.1	6.2	2.0	42	
	Day 3	2.0	25.0	18.7	<u>10.4</u>	0.0	6.2	4.1	6.2	8.3	4.1	0.0	14.5	63	
	Day 4	2.0	20.8	<u>31.2</u>	16.6	4.1	4.1	4.1	8.3	2.0	4.1	0.0	2.0	41	
	Day 5	10.4	31.2	<u>16.6</u>	22.9	14.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	27	
	Day 6	4.1	33.3	<u>22.9</u>	10.4	10.4	8.3	8.3	0.0	0.0	2.0	0.0	0.0	33	
	Day 7	4.1	27.0	<u>29.1</u>	18.7	10.4	0.0	0.0	4.1	4.1	0.0	0.0	2.0	36	
X3	Day 1	15.0	30.0	<u>7.0</u>	15.0	5.0	10.0	10.0	0.0	0.0	5.0	0.0	5.0	42	20
	Day 2	10.0	<u>40.0</u>	10.0	5.0	5.0	5.0	0.0	0.0	5.0	5.0	5.0	10.0	51	
	Day 3	20.0	<u>15.0</u>	10.0	<u>15.0</u>	10.0	0.0	10.0	5.0	5.0	0.0	0.0	10.0	54	
	Day 4	15.0	20.0	0.0	<u>25.0</u>	0.0	5.0	10.0	5.0	5.0	5.0	0.0	10.0	57	
	Day 5	0.0	25.0	<u>25.0</u>	10.0	5.0	5.0	5.0	10.0	0.0	5.0	0.0	10.0	65	
	Day 6	5.0	25.0	<u>25.0</u>	15.0	5.0	0.0	10.0	0.0	5.0	0.0	5.0	5.0	45	
	Day 7	15.0	25.0	<u>15.0</u>	15.0	10.0	5.0	5.0	0.0	0.0	0.0	5.0	5.0	42	
X4	Day 1	11.1	11.1	0.0	<u>33.3</u>	22.2	0.0	0.0	0.0	11.1	0.0	0.0	11.1	52	9
	Day 2	0.0	22.2	0.0	0.0	0.0	11.1	11.1	<u>33.3</u>	0.0	0.0	11.1	11.1	81	
	Day 3	22.2	11.1	11.1	<u>22.2</u>	11.1	11.1	0.0	0.0	0.0	0.0	0.0	11.1	44	
	Day 4	0.0	33.3	0.0	0.0	<u>22.2</u>	11.1	22.2	11.1	0.0	0.0	0.0	0.0	46	
	Day 5	0.0	33.3	<u>22.2</u>	11.1	0.0	11.1	11.1	11.1	0.0	0.0	0.0	0.0	36	
	Day 6	11.1	0.0	33.3	<u>22.2</u>	11.1	11.1	0.0	11.1	0.0	0.0	0.0	0.0	38	
	Day 7	11.1	11.1	22.2	<u>22.2</u>	0.0	11.1	0.0	11.1	0.0	0.0	0.0	11.1	48	
X5	Day 1	25.0	0.0	12.5	<u>25.0</u>	12.5	12.5	0.0	0.0	0.0	0.0	12.5	0.0	44	8
	Day 2	0.0	0.0	37.5	<u>12.5</u>	0.0	25.0	0.0	12.5	0.0	0.0	0.0	12.5	56	
	Day 3	0.0	25.0	<u>25.0</u>	25.0	12.5	0.0	0.0	12.5	0.0	0.0	0.0	0.0	34	
	Day 4	12.5	25.0	<u>25.0</u>	25.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	29	
	Day 5	0.0	12.5	25.0	<u>37.5</u>	0.0	0.0	0.0	12.5	12.5	0.0	0.0	0.0	45	
	Day 6	12.5	25.0	<u>25.0</u>	25.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	29	
	Day 7	12.5	25.0	<u>50.0</u>	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	

Table 3-9 Class vs Maximum 3-Hour ap Distribution For X-Class X-ray Events
(Continued)

Maximum 3-hour ap Distribution															
X-ray Class	Days After	Percent Frequency of Occurrence												Mean ap	Event Count
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-91	91-110	111-130	131-150	>150		
X6	Day 1	0.0	33.3	0.0	0.0	0.0	0.0	<u>33.3</u>	33.3	0.0	0.0	0.0	0.0	53	3
	Day 2	0.0	0.0	<u>66.6</u>	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	
	Day 3	0.0	0.0	33.3	0.0	0.0	0.0	<u>33.3</u>	0.0	0.0	0.0	33.3	0.0	75	
	Day 4	33.3	0.0	<u>33.3</u>	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	
	Day 5	0.0	33.3	0.0	0.0	<u>66.6</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	
	Day 6	33.3	<u>33.3</u>	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	40	
	Day 7	0.0	33.3	0.0	<u>33.3</u>	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	39	
X9	Day 1	0.0	<u>50.0</u>	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	47	4
	Day 2	25.0	<u>25.0</u>	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	64	
	Day 3	25.0	0.0	0.0	0.0	0.0	<u>25.0</u>	25.0	0.0	25.0	0.0	0.0	0.0	57	
	Day 4	0.0	25.0	<u>25.0</u>	0.0	0.0	25.0	0.0	0.0	0.0	25.0	0.0	0.0	53	
	Day 5	0.0	0.0	25.0	<u>50.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	125	
	Day 6	0.0	0.0	25.0	<u>50.0</u>	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	59	
	Day 7	0.0	50.0	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	